The SEAMAN's
Daily Affiftant,

BEING

A Short, Eafy, and Plain Method

OF KEEPING

A JOURNAL at SEA;

In which are contain'd

RULES,

SHEWING

How the Allowances for Lee-way, Variation, Heave of the Sea, Set of Currents, &c. are to be made, and to Correct the Dead - Reckoning by an Obfervation, in all Cafes : And alfo all the TABLES that are any ways neceffary for the SEAMAN's Ufe in keeping a Journal.

By THOMAS HASELDEN,
Late Teacher of the MATHEMATICKS in the *ROYAL-NAVY.*

TO THE
READER.

HAVING been educated in the Theory of Navigation, almost from my Childhood, and having had about Sixteen Years Experience of the practical Part (at Sea) both in the Merchants Service, and also as Teacher of the Mathematicks in the Royal-Navy; and having in the Course of that Time made a general Observation, that there are Numbers of Seamen who would gladly keep a Reckoning, had they any Short, Easy, and Plain Method to do it by, but are deterr'd from it by the want of such a Thing: And also that there are many who have thrown their Money away to little or no Purpose, by going to School to some Masters (of which Sort there are too many) that they have only got a Smattering of the Theory, and a few Terms of Art by Rote, which enables them to talk in such a manner to deceive those that go to learn of them; by having never been at Sea, cannot know any Thing of the Practice.

Therefore for the Use of such in particular, and of all other Sea-faring Men in general, I have written the following Treatise, in which I think I have inserted all the Rules, and all the Tables with their Uses, that are necessary to be used in any Case at Sea: And also particular Rules for keeping a Journal, with the manner of Correcting the Dead-Reckoning by an Observation, either for one Day, or for a longer Time; the first of which, viz. Correcting for one Day, has been treated of by several Authors; but the latter, viz. Correcting for a longer Time; I know has been barely mentioned in several, but not particularly ex-plain'd in any Author at all I believe, at least in none that I have

Read,

To the READER.

Read; And for that Reason I have done it in the Journal at the latter end of this Book, it being absolutely necessary for every Man that keeps a Reckoning to know it, because they are more likely to be out in their Reckoning, when they have been some Days without an Observation, then when they have one every Day, and consequently more likely to have Occasion to correct for three or four Days, than for a single One.

I have not begun this Book with Arithmetic, as most of the Books on this Subject do, because I think, that if any Person has had so little Education as not to be capable of Adding, Subtracting, Multiplying and Dividing, he will hardly be able to make any Progress, either in Arithmetic or Navigation, by the help of Books alone, without the Assistance of a Master (so that I think putting such Things into Books of this kind, serve only to enhance the Price, and are of no Service to the Reader.) And now having given an Account of the Reasons that enduced me to publish this Book (which I hope, and are pretty well assured, will be found the most useful Book of its kind, now in Print) for the daily Practice at Sea, I have nothing more to add, but to beg the Readers kind Acceptance of my Endeavours.

And am,

Their humble Servant,

Thomas Hafelden.

THE

THE
CONTENTS.

A

The CONTENTS.

Note, All the forementioned Tables are newly and carefully calculated, and the Tables of Latitude and Longitude carefully corrected from the best Authors and Charts.   A

A
TABLE
OF
DIFFERENCE of LATITUDE
AND
DEPARTURE

To every Single DEGREE,

And as far as 300 Miles DISTANCE.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.0	51	51.0	00.9	101	101.0	01.8	151	151.0	02.6	201	201.0	03.5	251	251.0	04.3
2	02.0	00.0	52	52.0	00.9	02	102.0	01.8	52	152.0	02.6	02	202.0	03.5	52	252.0	04.3
3	03.0	00.1	53	53.0	00.9	03	103.0	01.8	53	153.0	02.6	03	203.0	03.5	53	253.0	04.3
4	04.0	00.1	54	54.0	00.9	04	104.0	01.8	54	154.0	02.7	04	204.0	03.5	54	254.0	04.4
5	05.0	00.1	55	55.0	01.0	05	105.0	01.8	55	155.0	02.7	05	205.0	03.5	55	255.0	04.4
6	06.0	00.1	56	56.0	01.0	106	106.0	01.8	156	156.0	02.7	206	206.0	03.5	256	256.0	04.4
7	07.0	00.1	57	57.0	01.0	07	107.0	01.9	57	157.0	02.7	07	207.0	03.6	57	257.0	04.4
8	08.0	00.1	58	58.0	01.0	08	108.0	01.9	58	158.0	02.7	08	208.0	03.6	58	258.0	04.4
9	09.0	00.2	59	59.0	01.0	09	109.0	01.9	59	159.0	02.7	09	209.0	03.6	59	259.0	04.4
10	10.0	00.2	60	60.0	01.1	10	110.0	01.9	60	160.0	02.8	10	210.0	03.6	60	260.0	04.5
11	11.0	00.2	61	61.0	01.1	111	111.0	01.9	161	161.0	02.8	211	211.0	03.6	261	261.0	04.5
12	12.0	00.2	62	62.0	01.1	12	112.0	01.9	62	162.0	02.8	12	212.0	03.6	62	262.0	04.5
13	13.0	00.2	63	63.0	01.1	13	113.0	02.0	63	163.0	02.8	13	213.0	03.7	63	263.0	04.5
14	14.0	00.2	64	64.0	01.1	14	114.0	02.0	64	164.0	02.8	14	214.0	03.7	64	264.0	04.5
15	15.0	00.3	65	65.0	01.1	15	115.0	02.0	65	165.0	02.9	15	215.0	03.7	65	265.0	04.6
16	16.0	00.3	66	66.0	01.2	116	116.0	02.0	166	166.0	02.9	216	216.0	03.7	166	266.0	04.6
17	17.0	00.3	67	67.0	01.2	17	117.0	02.0	67	167.0	02.9	17	217.0	03.7	67	267.0	04.6
18	18.0	00.3	68	68.0	01.2	18	118.0	02.1	68	168.0	02.9	18	218.0	03.8	68	268.0	04.6
19	19.0	00.3	69	69.0	01.2	19	119.0	02.1	69	169.0	02.9	19	219.0	03.8	69	269.0	04.6
20	20.0	00.4	70	70.0	01.2	20	120.0	02.1	70	170.0	02.9	20	220.0	03.8	70	270.0	04.6
21	21.0	00.4	71	71.0	01.2	121	121.0	02.1	171	171.0	03.0	221	221.0	53.8	271	271.0	54.7
22	22.0	00.4	72	72.0	01.3	22	122.0	02.1	72	172.0	03.0	22	222.0	03.8	72	272.0	04.7
23	23.0	00.4	73	73.0	01.3	23	123.0	02.1	73	173.0	03.0	23	223.0	03.8	73	273.0	04.7
24	24.0	00.4	74	74.0	01.3	24	124.0	02.2	74	174.0	03.0	24	224.0	03.9	74	274.0	04.7
25	25.0	00.4	75	75.0	01.3	25	125.0	02.2	75	175.0	03.0	25	225.0	03.9	75	275.0	04.7
26	26.0	00.5	76	76.0	01.3	126	126.0	02.2	176	176.0	03.0	226	226.0	03.9	276	276.0	04.7
27	27.0	00.5	77	77.0	01.3	27	127.0	02.2	77	177.0	03.1	27	227.0	03.9	77	277.0	04.8
28	28.0	00.5	78	78.0	01.4	28	128.0	02.2	78	178.0	03.1	28	228.0	03.9	78	278.0	04.8
29	29.0	00.5	79	79.0	01.4	29	129.0	02.2	79	179.0	03.1	29	229.0	03.9	79	279.0	04.8
30	30.0	00.5	80	80.0	01.4	30	130.0	02.3	80	180.0	03.1	30	230.0	04.0	80	280.0	04.8
31	31.0	00.5	81	81.0	01.4	131	131.0	02.3	181	181.0	03.1	231	231.0	04.0	181	281.0	04.8
32	32.0	00.6	82	82.0	01.4	32	132.0	02.3	82	182.0	03.1	32	232.0	04.0	82	282.0	04.8
33	33.0	00.6	83	83.0	01.5	33	133.0	02.3	83	183.0	03.2	33	233.0	04.0	83	283.0	04.9
34	34.0	00.6	84	84.0	01.5	34	134.0	02.3	84	184.0	03.2	34	234.0	04.0	84	284.0	04.9
35	35.0	00.6	85	85.0	01.5	35	135.0	02.3	85	185.0	03.2	35	235.0	04.0	85	285.0	04.9
36	36.0	00.6	86	86.0	01.5	136	136.0	02.4	186	186.0	03.2	236	236.0	04.1	136	286.0	04.9
37	37.0	00.6	87	87.0	01.5	37	137.0	02.4	87	187.0	03.1	37	237.0	04.1	87	287.0	04.9
38	38.0	00.7	88	88.0	01.5	38	138.0	02.4	88	188.0	03.2	38	238.0	04.1	88	288.0	04.9
39	39.0	00.7	89	89.0	01.6	39	139.0	02.4	89	189.0	03.3	39	239.0	04.1	89	289.0	05.0
40	40.0	00.7	90	90.0	01.6	40	140.0	02.4	90	190.0	03.3	40	240.0	04.1	90	290.0	05.0
41	41.0	00.7	91	91.0	01.6	141	141.0	02.4	191	191.0	03.3	241	241.0	04.1	291	291.0	05.0
42	42.0	00.7	92	92.0	01.6	42	142.0	02.5	92	192.0	03.3	42	242.0	04.2	92	292.0	05.0
43	43.0	00.8	93	93.0	01.6	43	143.0	02.5	93	193.0	03.3	43	243.0	04.2	93	293.0	05.0
44	44.0	00.8	94	94.0	01.6	44	144.0	02.5	94	194.0	03.3	44	244.0	04.0	94	294.0	05.0
45	45.0	00.8	95	95.0	01.7	45	145.0	02.5	95	195.0	03.4	45	245.0	04.2	95	295.0	05.1
46	46.0	00.8	96	96.0	01.7	146	146.0	02.5	196	196.0	03.4	246	246.0	04.2	296	296.0	05.1
47	47.0	00.8	97	97.0	01.7	47	147.0	02.5	97	197.0	03.4	47	247.0	04.2	97	297.0	05.1
48	48.0	00.8	98	98.0	01.7	48	148.0	02.6	98	198.0	03.4	48	248.0	04.3	98	298.0	05.1
49	49.0	00.9	99	99.0	01.7	49	149.0	02.6	99	199.0	03.4	49	249.0	04.3	99	299.0	05.1
50	50.0	00.0	100	100.0	01.7	150	150.0	02.6	200	200.0	03.4	250	250.0	04.3	300	300.0	05.1
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.0	51	51.0	01.8	101	100.9	03.5	151	150.9	05.3	201	200.9	07.0	251	250.8	08.8
2	02.0	00.1	52	52.0	01.8	102	101.9	03.6	152	151.9	05.3	202	201.9	07.1	252	251.8	08.8
3	03.0	00.1	53	53.0	01.8	103	102.9	03.6	153	152.9	05.4	203	202.9	07.1	253	252.8	08.9
4	04.0	00.1	54	54.0	01.9	104	103.9	03.6	154	153.9	05.4	204	203.9	07.1	254	253.8	08.9
5	05.0	00.2	55	55.0	01.9	105	104.9	03.7	155	154.9	05.4	205	204.9	07.2	255	254.8	08.9
6	06.0	00.2	56	56.0	02.0	106	105.9	03.7	156	155.9	05.5	206	205.9	07.2	256	255.8	09.0
7	07.0	00.2	57	57.0	02.0	107	106.9	03.7	157	156.9	05.5	207	206.9	07.2	257	256.8	09.0
8	08.0	00.3	58	58.0	02.0	108	107.9	03.8	158	157.9	05.5	208	207.9	07.3	258	257.8	09.0
9	09.0	00.3	59	59.0	02.1	109	108.9	03.8	159	158.9	05.6	209	208.9	07.3	259	258.8	09.1
10	10.0	00.4	60	60.0	02.1	110	109.9	03.9	160	159.9	05.6	210	209.9	07.4	260	259.8	09.1
11	11.0	00.4	61	61.0	02.1	111	110.9	03.9	161	160.9	05.6	211	210.9	07.4	261	260.8	09.1
12	12.0	00.4	62	62.0	02.2	112	111.9	03.9	162	161.9	05.7	212	211.9	07.4	262	261.8	09.2
13	13.0	00.5	63	63.0	02.2	113	112.9	04.0	163	162.9	05.7	213	212.9	07.5	263	262.8	09.2
14	14.0	00.5	64	64.0	02.2	114	113.9	04.0	164	163.9	05.7	214	213.9	07.5	264	263.8	09.2
15	15.0	00.5	65	65.0	02.3	115	114.9	04.0	165	164.9	05.8	215	214.9	07.5	265	264.8	09.3
16	16.0	00.6	66	66.0	02.3	116	115.9	04.1	166	165.9	05.8	216	215.9	07.6	266	265.8	09.3
17	17.0	00.6	67	67.0	02.3	117	116.9	04.1	167	166.9	05.8	217	216.9	07.6	267	266.8	09.3
18	18.0	00.6	68	68.0	02.4	118	117.9	04.1	168	167.9	05.9	218	217.9	07.6	268	267.8	09.4
19	19.0	00.7	69	69.0	02.4	119	118.9	04.2	169	168.9	05.9	219	218.9	07.7	269	268.8	09.4
20	20.0	00.7	70	70.0	02.4	120	119.9	04.2	170	169.9	06.0	220	219.9	07.7	270	269.8	09.5
21	21.0	00.7	71	71.0	02.5	121	120.9	04.2	171	170.9	06.0	221	220.9	07.7	271	270.8	09.5
22	22.0	00.8	72	72.0	02.5	122	121.9	04.3	172	171.9	06.0	222	221.9	07.8	272	271.8	09.5
23	23.0	00.8	73	73.0	02.5	123	122.9	04.3	173	172.9	06.1	223	222.9	07.8	273	272.8	09.6
24	24.0	00.8	74	74.0	02.6	124	123.9	04.3	174	173.9	06.1	224	223.9	07.8	274	273.8	09.6
25	25.0	00.9	75	75.0	02.6	125	124.9	04.4	175	174.9	06.1	225	224.9	07.9	275	274.8	09.6
26	26.0	00.9	76	76.0	02.7	126	125.9	04.4	176	175.9	06.2	226	225.9	07.9	276	275.8	09.7
27	27.0	00.9	77	77.0	02.7	127	126.9	04.4	177	176.9	06.2	227	226.9	07.9	277	276.8	09.7
28	28.0	01.0	78	78.0	02.7	128	127.9	04.5	178	177.9	06.2	228	227.9	08.0	278	277.8	09.7
29	29.0	01.0	79	79.0	02.8	129	128.9	04.5	179	178.9	06.3	229	228.9	08.0	279	278.8	09.8
30	30.0	01.1	80	80.0	02.8	130	129.9	04.6	180	179.9	06.3	230	229.9	08.1	280	279.8	09.8
31	31.0	01.1	81	81.0	02.8	131	130.9	04.6	181	180.9	06.3	231	230.9	08.1	281	280.8	09.8
32	32.0	01.1	82	81.9	02.9	132	131.9	04.6	182	181.9	06.4	232	231.9	08.1	282	281.8	09.9
33	33.0	01.2	83	82.9	02.9	133	132.9	04.7	183	182.9	06.4	233	232.9	08.2	283	282.8	09.9
34	34.0	01.2	84	83.9	02.9	134	133.9	04.7	184	183.9	06.4	234	233.9	08.2	284	283.8	09.9
35	35.0	01.2	85	84.9	03.0	135	134.9	04.7	185	184.9	06.5	235	234.9	08.2	285	284.8	10.0
36	36.0	01.3	86	85.9	03.0	136	135.9	04.8	186	185.9	06.5	236	235.9	08.3	286	285.8	10.0
37	37.0	01.3	87	86.9	03.0	137	136.9	04.8	187	186.9	06.5	237	236.9	08.3	287	286.8	10.0
38	38.0	01.3	88	87.9	03.1	138	137.9	04.8	188	187.9	06.6	238	237.9	08.3	288	287.8	10.1
39	39.0	01.4	89	88.9	03.1	139	138.9	04.9	189	188.9	06.6	239	238.9	08.4	289	288.8	10.1
40	40.0	01.4	90	89.9	03.1	140	139.9	04.9	190	189.9	06.7	240	239.9	08.4	290	289.8	10.2
41	41.0	01.4	91	90.9	03.2	141	140.9	04.9	191	190.9	06.7	241	240.9	08.4	291	290.8	10.2
42	42.0	01.5	92	91.9	03.2	142	141.9	05.0	192	191.9	06.7	242	241.9	08.5	292	291.8	10.2
43	43.0	01.5	93	92.9	03.2	143	142.9	05.0	193	192.9	06.8	243	242.9	08.5	293	292.8	10.3
44	44.0	01.5	94	93.9	03.3	144	143.9	05.0	194	193.9	06.8	244	243.9	08.5	294	293.8	10.3
45	45.0	01.6	95	94.9	03.3	145	144.9	05.1	195	194.9	06.8	245	244.9	08.6	295	294.8	10.3
46	46.0	01.6	96	95.9	03.4	146	145.9	05.1	196	195.9	06.9	246	245.9	08.6	296	295.8	10.4
47	47.0	01.6	97	96.9	03.4	147	146.9	05.1	197	196.9	06.9	247	246.9	08.6	297	296.8	10.4
48	48.0	01.7	98	97.9	03.4	148	147.9	05.2	198	197.9	06.9	248	247.9	08.7	298	297.8	10.4
49	49.0	01.7	99	98.9	03.5	149	148.9	05.2	199	198.9	07.0	249	248.9	08.7	299	298.8	10.5
50	50.0	01.7	100	99.9	03.5	150	149.9	05.3	200	199.9	07.0	250	249.9	08.8	300	299.8	10.5
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.1	51	50.9	02.7	101	100.9	05.3	151	150.8	07.9	201	200.7	10.5	251	250.6	13.1
2	02.0	00.2	52	51.9	02.7	02	101.9	05.3	52	151.8	08.0	02	201.7	10.6	52	251.6	13.2
3	03.0	00.2	53	52.9	02.8	03	102.9	05.4	53	152.8	08.0	03	202.7	10.6	53	252.6	13.2
4	04.0	00.2	54	53.9	02.8	04	103.9	05.4	54	153.8	08.1	04	203.7	10.7	54	253.6	13.3
5	05.0	00.3	55	54.9	02.9	05	104.9	05.5	55	154.8	08.1	05	204.7	10.7	55	254.6	13.3
6	06.0	00.3	56	55.9	02.9	106	105.9	05.5	156	155.8	08.2	206	205.7	10.8	256	255.6	13.4
7	07.0	00.4	57	56.9	03.0	07	106.9	05.6	57	156.8	08.2	07	206.7	10.8	57	256.6	13.4
8	08.0	00.4	58	57.9	03.0	08	107.8	05.7	58	157.8	08.3	08	207.7	10.9	58	257.6	13.5
9	09.0	00.5	59	58.9	03.1	09	108.8	05.7	59	158.8	08.3	09	208.7	10.9	59	258.6	13.6
10	10.0	00.5	60	59.9	03.1	10	109.8	05.8	60	159.8	08.4	10	209.7	11.0	60	259.6	13.6
11	11.0	00.6	61	60.9	03.2	111	110.8	05.8	161	160.8	08.4	211	210.7	11.0	261	260.6	13.7
12	12.0	00.6	62	61.9	03.2	12	111.8	05.9	62	161.8	08.5	12	211.7	11.1	62	261.6	13.7
13	13.0	00.7	63	62.9	03.3	13	112.8	05.9	63	162.8	08.5	13	212.7	11.1	63	262.6	13.8
14	14.0	00.7	64	63.9	03.3	14	113.8	06.0	64	163.8	08.6	14	213.7	11.2	64	263.6	13.8
15	15.0	00.8	65	64.9	03.4	15	114.8	06.0	65	164.8	08.6	15	214.7	11.2	65	264.6	13.9
16	16.0	00.8	66	65.9	03.5	116	115.8	06.1	166	165.8	08.7	216	215.7	11.3	266	265.6	13.9
17	17.0	00.9	67	66.9	03.5	17	116.8	06.1	67	166.8	08.7	17	216.7	11.4	67	266.6	14.0
18	18.0	00.9	68	67.9	03.6	18	117.8	06.2	68	167.8	08.8	18	217.7	11.4	68	267.6	14.0
19	19.0	01.0	69	68.9	03.6	19	118.8	06.2	69	168.8	08.8	19	218.7	11.5	69	268.6	14.1
20	20.0	01.0	70	69.9	03.7	20	119.8	06.3	70	169.8	08.9	20	219.7	11.5	70	269.6	14.1
21	21.0	01.1	71	70.9	03.7	121	120.8	06.3	171	170.8	09.0	221	220.7	11.6	271	270.6	14.2
22	22.0	01.1	72	71.9	03.8	22	121.8	06.4	72	171.8	09.0	22	221.7	11.6	72	271.6	14.2
23	23.0	01.2	73	72.9	03.8	23	122.8	06.4	73	172.8	09.1	23	222.7	11.7	73	272.6	14.3
24	24.0	01.3	74	73.9	03.9	24	123.8	06.5	74	173.8	09.1	24	223.7	11.7	74	273.6	14.3
25	25.0	01.3	75	74.9	03.9	25	124.8	06.5	75	174.8	09.2	25	224.7	11.8	75	274.6	14.4
26	26.0	01.4	76	75.9	04.0	126	125.8	06.6	176	175.8	09.2	226	225.7	11.8	276	275.6	14.4
27	27.0	01.4	77	76.9	04.0	27	126.8	06.6	77	176.8	09.3	27	226.7	11.9	77	276.6	14.5
28	28.0	01.5	78	77.9	04.1	28	127.8	06.7	78	177.8	09.3	28	227.7	11.9	78	277.6	14.5
29	29.0	01.5	79	78.9	04.1	29	128.8	06.8	79	178.7	09.4	29	228.7	12.0	79	278.6	14.6
30	30.0	01.6	80	79.9	04.2	30	129.8	06.8	80	179.7	09.4	30	229.7	12.0	80	279.6	14.7
31	31.0	01.6	81	80.9	04.2	131	130.8	06.9	181	180.7	09.5	231	230.7	12.1	281	280.6	14.7
32	32.0	01.7	82	81.9	04.3	32	131.8	06.9	82	181.7	09.5	32	231.7	12.1	82	281.6	14.8
33	33.0	01.7	83	82.9	04.3	33	132.8	07.0	83	182.7	09.6	33	232.7	12.2	83	282.6	14.8
34	34.0	01.8	84	83.9	04.4	34	133.8	07.0	84	183.7	09.6	34	233.7	12.2	84	283.6	14.9
35	35.0	01.8	85	84.9	04.4	35	134.8	07.1	85	184.7	09.7	35	234.7	12.3	85	284.6	14.9
36	35.9	01.9	86	85.9	04.5	136	135.8	07.1	186	185.7	09.7	236	235.7	12.3	286	285.6	15.0
37	36.9	01.9	87	86.9	04.6	37	136.8	07.2	87	186.7	09.8	37	236.7	12.4	87	286.6	15.0
38	37.9	02.0	88	87.9	04.6	38	137.8	07.2	88	187.7	09.8	38	237.7	12.5	88	287.6	15.1
39	38.9	02.0	89	88.9	04.7	39	138.8	07.3	89	188.7	09.9	39	238.7	12.5	89	288.6	15.1
40	39.9	02.1	90	89.9	04.7	40	139.8	07.3	90	189.7	09.9	40	239.7	12.6	90	289.6	15.2
41	40.9	02.1	91	90.9	04.8	141	140.8	07.4	191	190.7	10.0	241	240.7	12.6	291	290.6	15.2
42	41.9	02.2	92	91.9	04.8	42	141.8	07.4	92	191.7	10.0	42	241.7	12.7	92	291.6	15.3
43	42.9	02.2	93	92.9	04.9	43	142.8	07.5	93	192.7	10.1	43	242.7	12.7	93	292.6	15.3
44	43.9	02.3	94	93.9	04.9	44	143.8	07.5	94	193.7	10.1	44	243.7	12.8	94	293.6	15.4
45	44.9	02.4	95	94.9	05.0	45	144.8	07.6	95	194.7	10.2	45	244.7	12.8	95	294.6	15.4
46	45.9	02.4	96	95.9	05.0	146	145.8	07.6	196	195.7	10.3	246	245.7	12.9	296	295.6	15.5
47	46.9	02.5	97	96.9	05.1	47	146.8	07.7	97	196.7	10.3	47	246.7	12.9	97	296.6	15.5
48	47.9	02.5	98	97.9	05.1	48	147.8	07.7	98	197.7	10.4	48	247.7	13.0	98	297.6	15.6
49	48.9	02.6	99	98.9	05.2	49	148.8	07.8	99	198.7	10.4	49	248.7	13.0	99	298.6	15.6
50	49.9	02.6	100	99.9	05.2	150	149.8	07.9	200	199.7	10.5	250	249.7	13.1	300	299.6	15.7
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	01.0	00.1	51	50.9	03.6	101	100.8	07.0	151	150.6	10.5	201	200.5	14.0	251	250.4	17.5
2	2.0	00.1	52	51.9	03.6	102	101.8	07.1	152	151.6	10.6	202	201.5	14.1	252	251.4	17.6
3	03.0	00.2	53	52.9	03.7	103	102.8	07.2	153	152.6	10.7	203	202.5	14.1	253	252.4	17.6
4	04.0	00.3	54	53.9	03.8	104	103.8	07.2	154	153.6	10.7	204	203.5	14.2	254	253.4	17.7
5	05.0	00.3	55	54.9	03.8	105	104.7	07.3	155	154.6	10.8	205	204.5	14.3	255	254.4	17.8
6	06.0	00.4	56	55.9	03.9	106	105.7	07.4	156	155.6	10.9	206	205.5	14.4	256	255.4	17.8
7	07.0	00.5	57	56.9	04.0	107	106.7	07.5	157	156.6	10.9	207	206.5	14.4	257	256.4	17.9
8	08.0	00.6	58	57.9	04.0	108	107.7	07.5	158	157.6	11.0	208	207.5	14.5	258	257.4	18.0
9	09.0	00.6	59	58.9	04.1	109	108.7	07.6	159	158.6	11.1	209	208.5	14.6	259	258.4	18.1
10	10.0	00.7	60	59.9	04.2	110	109.7	07.7	160	159.6	11.2	210	209.5	14.6	260	259.4	18.1
11	11.0	00.8	61	60.9	04.3	111	110.7	07.7	161	160.6	11.2	211	210.5	14.7	261	260.4	18.2
12	12.0	00.8	62	61.9	04.3	112	111.7	07.8	162	161.6	11.3	212	211.5	14.8	262	261.4	18.3
13	13.0	00.9	63	62.8	04.4	113	112.7	07.9	163	162.6	11.4	213	212.5	14.8	263	262.4	18.3
14	14.0	01.0	64	63.8	04.5	114	113.7	07.9	164	163.6	11.4	214	213.5	14.9	264	263.4	18.4
15	15.0	01.0	65	64.8	04.5	115	114.7	08.0	165	164.6	11.5	215	214.5	15.0	265	264.4	18.5
16	16.0	01.1	66	65.8	04.6	116	115.7	08.1	166	165.6	11.6	216	215.5	15.1	266	265.4	18.5
17	17.0	01.2	67	66.8	04.7	117	116.7	08.2	167	166.6	11.6	217	216.5	15.1	267	266.4	18.6
18	18.0	01.3	68	67.8	04.7	118	117.7	08.2	168	167.6	11.7	218	217.5	15.2	268	267.4	18.7
19	19.0	01.3	69	68.8	04.8	119	118.7	08.3	169	168.6	11.8	219	218.5	15.3	269	268.4	18.7
20	20.0	01.4	70	69.8	04.9	120	119.7	08.4	170	169.6	11.8	220	219.5	15.3	270	269.4	18.8
21	20.9	01.5	71	70.8	05.0	121	120.7	08.4	171	170.6	11.9	221	220.5	15.4	271	270.3	18.9
22	21.9	01.5	72	71.8	05.0	122	121.7	08.5	172	171.6	12.0	222	221.5	15.5	272	271.3	19.0
23	22.9	01.6	73	72.8	05.1	123	122.7	08.6	173	172.6	12.1	223	222.5	15.5	273	272.3	19.0
24	23.9	01.7	74	73.8	05.2	124	123.7	08.6	174	173.6	12.1	224	223.5	15.6	274	273.3	19.1
25	24.9	01.7	75	74.8	05.2	125	124.7	08.7	175	174.6	12.2	225	224.5	15.7	275	274.3	19.2
26	25.9	01.8	76	75.8	05.3	126	125.7	08.8	176	175.6	12.3	226	225.5	15.8	276	275.3	19.2
27	26.9	01.9	77	76.8	05.4	127	126.7	08.9	177	176.6	12.3	227	226.5	15.8	277	276.3	19.3
28	27.9	02.0	78	77.8	05.4	128	127.7	08.9	178	177.6	12.4	228	227.5	15.9	278	277.3	19.4
29	28.9	02.0	79	78.8	05.5	129	128.7	09.0	179	178.6	12.5	229	228.5	16.0	279	278.3	19.4
30	29.9	02.1	80	79.8	05.6	130	129.7	09.1	180	179.6	12.5	230	229.4	16.0	280	279.3	19.5
31	30.9	02.2	81	80.8	05.7	131	130.7	09.1	181	180.6	12.6	231	230.4	16.1	281	280.3	19.6
32	31.9	02.2	82	81.8	05.7	132	131.7	09.2	182	181.6	12.7	232	231.4	16.2	282	281.3	19.7
33	32.9	02.3	83	82.8	05.8	133	132.7	09.3	183	182.6	12.8	233	232.4	16.2	283	282.3	19.7
34	33.9	02.4	84	83.8	05.9	134	133.7	09.3	184	183.6	12.8	234	233.4	26.3	284	283.3	19.8
35	34.9	02.4	85	84.8	05.9	135	134.7	09.4	185	184.6	12.9	235	234.4	16.4	285	284.3	19.9
36	35.9	02.5	86	85.8	06.0	136	135.7	09.5	186	185.6	13.0	236	235.4	16.4	286	285.3	19.9
37	36.9	02.6	87	86.8	06.1	137	136.7	09.5	187	186.6	13.0	237	236.4	16.5	287	286.3	20.0
38	37.9	02.7	88	87.8	06.1	138	137.7	09.6	188	187.5	13.1	238	237.4	16.6	288	287.3	20.0
39	38.9	02.7	89	88.8	06.2	139	138.7	09.7	189	188.5	13.2	239	238.4	16.7	289	288.3	20.1
40	39.9	02.8	90	89.8	06.3	140	139.7	09.8	190	189.5	13.2	240	239.4	16.7	290	289.3	20.2
41	40.9	02.9	91	90.8	06.4	141	140.7	09.8	191	190.5	13.3	241	240.4	16.8	291	290.3	20.3
42	41.9	02.9	92	91.8	06.4	142	141.7	09.9	192	191.5	13.4	242	241.4	16.9	292	291.3	20.4
43	42.9	03.0	93	92.8	06.5	143	142.7	10.0	193	192.5	13.5	243	242.4	16.9	293	292.3	20.4
44	43.9	03.1	94	93.8	06.6	144	143.7	10.0	194	193.5	13.5	244	243.4	17.0	294	293.3	20.5
45	44.9	03.1	95	94.8	06.6	145	144.7	10.1	195	194.5	13.6	245	244.4	17.1	295	294.3	20.6
46	45.9	03.2	96	95.8	06.7	146	145.6	10.2	196	195.5	13.7	246	245.4	17.1	296	295.3	20.6
47	46.9	03.3	97	96.8	06.8	147	146.6	10.2	197	196.5	13.7	247	246.4	17.2	297	296.3	20.7
48	47.9	03.4	98	97.8	06.8	148	147.6	10.3	198	197.5	13.8	248	247.4	17.3	298	297.3	20.8
49	48.9	03.4	99	98.8	06.9	149	148.6	10.4	199	198.5	13.9	249	248.4	17.4	299	298.3	20.8
50	49.9	03.5	100	99.8	07.0	150	149.6	10.5	200	199.5	13.9	250	249.4	17.4	300	299.3	20.9
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.1	51	50.8	04.4	101	100.6	08.8	151	150.4	13.1	201	200.2	17.5	251	250.0	21.8
2	02.0	00.2	52	51.8	04.5	102	101.6	08.9	152	151.4	13.2	202	201.2	17.6	252	251.0	21.9
3	03.0	00.3	53	52.8	04.6	103	102.6	09.0	153	152.4	13.3	203	202.2	17.7	253	252.0	22.0
4	04.0	00.3	54	53.8	04.7	104	103.6	09.0	154	153.4	13.4	204	203.2	17.7	254	253.0	22.1
5	05.0	00.4	55	54.8	04.8	105	104.6	09.1	155	154.4	13.5	205	204.2	17.8	255	254.0	22.2
6	06.0	00.5	56	55.8	04.9	106	105.6	09.2	156	155.4	13.6	206	205.2	17.9	256	255.0	22.3
7	07.0	00.6	57	56.8	05.0	107	106.6	09.3	157	156.4	13.7	207	206.2	18.0	257	256.0	22.4
8	08.0	00.7	58	57.8	05.1	108	107.6	09.4	158	157.4	13.7	208	207.2	18.1	258	257.0	22.4
9	09.0	00.8	59	58.8	05.1	109	108.6	09.5	159	158.4	13.8	209	208.2	18.2	259	258.0	22.5
10	10.0	00.9	60	59.8	05.2	110	109.6	09.6	160	159.4	13.9	210	209.2	18.3	260	259.0	22.6
11	11.0	01.0	61	60.8	05.3	111	110.6	09.7	161	160.4	14.0	211	210.2	18.4	261	260.0	22.7
12	12.0	01.0	62	61.8	05.4	112	111.6	09.7	162	161.4	14.1	212	211.2	18.4	262	261.0	22.8
13	12.9	01.1	63	62.8	05.5	113	112.6	09.8	163	162.4	14.2	213	212.2	18.5	263	262.0	22.9
14	13.9	01.2	64	63.8	05.6	114	113.6	09.9	164	163.4	14.3	214	213.2	18.6	264	263.0	23.0
15	14.9	01.3	65	64.8	05.7	115	114.6	10.0	165	164.4	14.4	215	214.2	18.7	265	264.0	23.1
16	15.9	01.4	66	65.7	05.8	116	115.6	10.1	166	165.4	14.4	216	215.2	18.8	266	265.0	23.1
17	16.9	01.5	67	66.7	05.8	117	116.6	10.2	167	166.4	14.5	217	216.2	18.9	267	266.0	23.2
18	17.9	01.6	68	67.7	05.9	118	117.6	10.3	168	167.4	14.6	218	217.2	19.0	268	267.0	23.3
19	18.9	01.7	69	68.7	06.0	119	118.5	10.4	169	168.4	14.7	219	218.2	19.1	269	268.0	23.4
20	19.9	01.7	70	69.7	06.1	120	119.5	10.4	170	169.4	14.8	220	219.2	19.1	270	269.0	23.5
21	20.9	01.8	71	70.7	06.2	121	120.5	10.5	171	170.4	14.9	221	220.2	19.2	271	270.0	23.6
22	21.9	01.9	72	71.7	06.3	122	121.5	10.6	172	171.3	15.0	222	221.2	19.3	272	271.0	23.7
23	22.9	02.0	73	72.7	06.4	123	122.5	10.7	173	172.3	15.1	223	222.2	19.4	273	272.0	23.8
24	23.9	02.1	74	73.7	06.5	124	123.5	10.8	174	173.3	15.1	224	223.1	19.5	274	273.0	23.8
25	24.9	02.2	75	74.7	06.5	125	124.5	10.9	175	174.3	15.2	225	224.1	19.6	275	274.0	23.9
26	25.9	02.3	76	75.7	06.6	126	125.5	11.0	176	175.3	15.3	226	225.1	19.7	276	275.0	24.0
27	26.9	02.4	77	76.7	06.7	127	126.5	11.0	177	176.3	15.4	227	226.1	19.7	277	275.9	24.1
28	27.9	02.4	78	77.7	06.8	128	127.5	11.1	178	177.3	15.5	228	227.1	19.8	278	276.9	24.2
29	28.9	02.5	79	78.7	06.9	129	128.5	11.2	179	178.3	15.6	229	228.1	19.9	279	277.9	24.3
30	29.9	02.6	80	79.7	07.0	130	129.5	11.3	180	179.3	15.7	230	229.1	20.0	280	278.9	24.4
31	30.9	02.7	81	80.7	07.1	131	130.5	11.4	181	180.3	15.7	231	230.1	20.1	281	279.9	24.4
32	31.9	02.8	82	81.7	07.2	132	131.5	11.5	182	181.3	15.8	232	231.1	20.2	282	280.9	24.5
33	32.9	02.9	83	82.7	07.2	133	132.5	11.6	183	182.3	15.9	233	232.1	20.3	283	281.9	24.6
34	33.9	03.0	84	83.7	07.3	134	133.5	11.7	184	183.3	16.0	234	233.1	20.4	284	282.9	24.7
35	34.9	03.1	85	84.7	07.4	135	134.5	11.7	185	184.3	16.1	235	234.1	20.4	285	283.9	24.8
36	35.9	03.1	86	85.7	07.5	136	135.5	11.8	186	185.3	16.2	236	235.1	20.5	286	284.9	24.9
37	36.9	03.2	87	86.7	07.6	137	136.5	11.9	187	186.3	16.3	237	236.1	20.6	287	285.9	25.0
38	37.9	03.3	88	87.7	07.7	138	137.5	12.0	188	187.3	16.4	238	237.1	20.7	288	286.9	25.1
39	38.9	03.4	89	88.7	07.8	139	138.5	12.1	189	188.3	16.4	239	238.1	20.8	289	287.9	25.1
40	39.8	03.5	90	89.7	07.8	140	139.5	12.2	190	189.3	16.5	240	239.1	20.9	290	288.9	25.2
41	40.8	03.6	91	90.7	07.9	141	140.5	12.3	191	190.3	16.6	241	240.1	21.0	291	289.9	25.3
42	41.8	03.7	92	91.6	08.0	142	141.5	12.4	192	191.3	16.7	242	241.1	21.1	292	290.9	25.4
43	42.8	03.8	93	92.6	08.1	143	142.5	12.4	193	192.3	16.8	243	242.1	21.1	293	291.9	25.5
44	43.8	03.8	94	93.6	08.2	144	143.5	12.5	194	193.3	16.9	244	243.1	21.2	294	292.9	25.6
45	44.8	03.9	95	94.6	08.3	145	144.4	12.6	195	194.3	17.0	245	244.1	21.3	295	293.9	25.7
46	45.8	04.0	96	95.6	08.4	146	145.4	12.7	196	195.3	17.1	246	245.1	21.4	296	294.9	25.8
47	46.8	04.1	97	96.6	08.5	147	146.4	12.8	197	196.3	17.1	247	246.1	21.5	297	295.9	25.8
48	47.8	04.2	98	97.6	08.5	148	147.4	12.9	198	197.2	17.2	248	247.1	21.6	298	296.9	25.9
49	48.8	04.3	99	98.6	08.6	149	148.4	13.0	199	198.2	17.3	249	248.1	21.7	299	297.9	26.0
50	49.8	04.4	100	99.6	08.7	150	149.4	13.1	200	199.2	17.4	250	249.1	21.8	300	298.9	26.1
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.1	51	50.7	05.3	101	100.4	10.6	151	150.2	15.8	201	199.9	21.0	251	249.6	26.2
2	02.0	00.2	52	51.7	05.4	02	101.4	10.7	52	151.2	15.9	02	200.9	21.1	52	250.6	26.3
3	03.0	00.3	53	52.7	05.5	03	102.4	10.8	53	152.2	16.0	03	201.9	21.2	53	251.6	26.4
4	04.0	00.4	54	53.7	05.6	04	103.4	10.9	54	153.2	16.1	04	202.9	21.3	54	252.6	26.5
5	05.0	00.5	55	54.7	05.7	05	104.4	11.0	55	154.1	16.2	05	203.9	21.4	55	253.6	26.6
6	06.0	00.6	56	55.7	05.9	106	105.4	11.1	156	155.1	16.3	206	204.9	21.5	256	254.6	26.8
7	07.0	00.7	57	56.7	06.0	07	106.4	11.2	57	156.1	16.4	07	205.9	21.6	57	255.6	26.9
8	08.0	00.8	58	57.7	06.1	08	107.4	11.3	58	157.1	16.5	08	206.9	21.7	58	256.6	27.0
9	08.9	00.9	59	58.7	06.2	09	108.4	11.4	59	158.	16.6	09	207.9	21.8	59	257.6	27.1
10	09.9	01.0	60	59.7	06.3	10	109.4	11.5	60	159.1	16.7	10	208.8	21.9	60	258.6	27.2
11	10.9	01.1	61	60.7	06.4	111	110.4	11.6	161	160.1	16.8	211	209.8	22.0	261	259.6	27.3
12	11.9	01.3	62	61.7	06.5	12	111.4	11.7	62	161.1	16.9	12	210.8	22.2	62	260.6	27.4
13	12.9	01.4	63	62.7	06.6	13	112.4	11.8	63	162.1	17.0	13	211.8	22.3	63	261.6	27.5
14	13.9	01.5	64	63.6	06.7	14	113.4	11.9	64	163.1	17.1	14	212.8	22.4	64	262.5	27.6
15	14.9	01.6	65	64.6	06.8	15	114.4	12.0	65	164.1	17.2	15	213.8	22.5	65	263.5	27.7
16	15.9	01.7	66	65.6	06.9	116	115.4	12.1	166	165.1	17.3	216	214.8	22.6	266	264.5	27.8
17	16.9	01.8	67	66.6	07.0	17	116.4	12.2	67	166.1	17.5	17	215.8	22.7	67	265.5	27.9
18	17.9	01.9	68	67.6	07.1	18	117.4	12.3	68	167.1	17.6	18	216.8	22.8	68	266.5	28.0
19	18.9	02.0	69	68.6	07.2	19	118.3	12.4	69	168.1	17.7	19	217.8	22.9	69	267.5	28.1
20	19.9	02.1	70	69.6	07.3	20	119.3	12.5	70	169.1	17.8	20	218.8	23.0	70	268.5	28.2
21	20.9	02.2	71	70.6	07.4	121	120.3	12.6	171	170.1	17.9	221	219.8	23.1	271	269.5	28.3
22	21.9	02.3	72	71.6	07.5	22	121.3	12.7	72	171.1	18.0	22	220.8	23.2	72	270.5	28.4
23	22.9	02.4	73	72.6	07.6	23	122.3	12.9	73	172.0	18.1	23	221.8	23.3	73	271.5	28.5
24	23.9	02.5	74	73.6	07.7	24	123.3	13.0	74	173.0	18.2	24	222.8	23.4	74	272.5	28.6
25	24.9	02.6	75	74.6	07.8	25	124.3	13.1	75	174.0	18.3	25	223.8	23.5	75	273.5	28.7
26	25.9	02.7	76	75.6	07.9	126	125.3	13.2	176	175.0	18.4	226	224.8	23.6	276	274.5	28.8
27	26.9	02.8	77	76.6	08.0	27	126.3	13.3	77	176.0	18.5	27	225.8	23.7	77	275.5	28.9
28	27.8	02.9	78	77.6	08.1	28	127.3	13.4	78	177.0	18.6	28	226.7	23.8	78	276.5	29.1
29	28.8	03.0	79	78.6	08.3	29	128.3	13.5	79	178.0	18.7	29	227.7	23.9	79	277.5	29.2
30	29.8	03.1	80	79.6	08.4	30	129.3	13.6	80	179.0	18.8	30	228.7	24.0	80	278.5	29.3
31	30.8	03.2	81	80.6	08.5	131	130.3	13.7	181	180.0	18.9	231	229.7	24.1	281	279.5	29.4
32	31.8	03.3	82	81.5	08.6	32	131.3	13.8	82	181.0	19.0	32	230.7	24.2	82	280.4	29.5
33	32.8	03.4	83	82.5	08.7	33	132.3	13.9	83	182.0	19.1	33	231.7	24.3	83	281.4	29.6
34	33.8	03.6	84	83.5	08.8	34	133.3	14.0	84	183.0	19.2	34	232.7	24.5	84	282.4	29.7
35	34.8	03.7	85	84.5	08.9	35	134.3	14.1	85	184.0	19.3	35	233.7	24.6	85	283.4	29.8
36	35.8	03.8	86	85.5	09.0	136	135.3	14.2	186	185.0	19.4	236	234.7	24.7	286	284.4	29.9
37	36.8	03.9	87	86.5	09.1	37	136.2	14.3	87	186.0	19.5	37	235.7	24.8	87	285.4	30.0
38	37.8	04.0	88	87.5	09.2	38	137.2	14.4	88	187.0	19.6	38	236.7	24.9	88	286.4	30.1
39	38.8	04.1	89	88.5	09.3	39	138.2	14.5	89	188.0	19.8	39	237.7	25.0	89	287.4	30.2
40	39.8	04.2	90	89.5	09.4	40	139.2	14.6	90	189.0	19.9	40	238.7	25.1	90	288.4	30.3
41	40.8	04.3	91	90.5	09.5	141	140.2	14.7	191	189.9	20.0	241	239.7	25.2	291	289.4	30.4
42	41.8	04.4	92	91.5	09.6	42	141.2	14.8	92	190.9	20.1	42	240.7	25.3	92	290.4	30.5
43	42.8	04.5	93	92.5	09.7	43	142.2	14.9	93	191.9	20.2	43	241.7	25.4	93	291.4	30.6
44	43.8	04.6	94	93.5	09.8	44	143.2	15.0	94	192.9	20.3	44	242.7	25.5	94	292.4	30.7
45	44.8	04.7	95	94.5	09.9	45	144.2	15.2	95	193.9	20.4	45	243.7	25.6	95	293.4	30.8
46	45.7	04.8	96	95.5	10.0	146	145.2	15.3	196	194.9	20.5	246	244.6	25.7	296	294.4	30.9
47	46.7	04.9	97	96.5	10.1	47	146.2	15.4	97	195.9	20.6	47	245.6	25.8	97	295.4	31.0
48	47.7	05.0	98	97.5	10.2	48	147.2	15.5	98	196.9	20.7	48	246.6	25.9	98	296.4	31.1
49	48.7	05.1	99	98.5	10.3	49	148.2	15.6	99	197.9	20.8	49	247.6	26.0	99	297.4	31.2
50	49.7	05.2	100	99.5	10.5	150	149.2	15.7	200	198.9	20.9	150	248.6	26.1	300	298.4	31.4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.1	51	50.6	06.2	101	100.2	12.3	151	149.9	18.4	201	199.5	24.5	251	249.1	30.6
2	02.0	00.2	52	51.6	06.3	02	101.2	12.4	52	150.9	18.5	02	200.5	24.6	52	250.1	30.7
3	03.0	00.4	53	52.6	06.5	03	102.2	12.5	53	151.9	18.6	03	201.5	24.7	53	251.1	30.8
4	04.0	00.5	54	53.6	06.6	04	103.2	12.7	54	152.8	18.7	04	202.5	24.8	54	252.1	30.9
5	05.0	00.6	55	54.6	06.7	05	104.2	12.8	55	153.8	18.9	05	203.5	25.0	55	253.1	31.0
6	06.0	00.7	56	55.6	06.8	106	105.2	12.9	156	154.8	19.0	206	204.5	25.1	256	254.1	31.2
7	06.9	00.9	57	56.6	06.9	07	106.2	13.0	57	155.8	19.1	07	205.4	25.2	57	255.1	31.3
8	07.9	01.0	58	57.6	07.1	08	107.2	13.1	58	156.8	19.2	08	206.4	25.3	58	256.1	31.4
9	08.9	01.1	59	58.6	07.2	09	108.2	13.3	59	157.8	19.4	09	207.4	25.4	59	257.1	31.5
10	09.9	01.2	60	59.6	07.3	10	109.2	13.4	60	158.8	19.5	10	208.4	25.6	60	258.1	31.7
11	10.9	01.3	61	60.5	07.4	111	110.2	13.5	161	159.8	19.6	211	209.4	25.7	261	259.0	31.8
12	11.9	01.5	62	61.5	07.5	12	111.2	13.6	62	160.8	19.7	12	210.4	25.8	62	260.0	31.9
13	12.9	01.6	63	62.5	07.7	13	112.2	13.8	63	161.8	19.8	13	211.4	25.9	63	261.0	32.0
14	13.9	01.7	64	63.5	07.8	14	113.1	13.9	64	162.8	20.0	14	212.4	26.1	64	262.0	32.1
15	14.9	01.8	65	64.5	07.9	15	114.1	14.0	65	163.8	20.1	15	213.4	26.2	65	263.0	32.3
16	15.9	01.9	66	65.5	08.0	116	115.1	14.1	166	164.8	20.2	216	214.4	26.3	266	264.0	32.4
17	16.9	02.1	67	66.5	08.2	17	116.1	14.2	67	165.7	20.3	17	215.4	26.4	67	265.0	32.5
18	17.9	02.2	68	67.5	08.3	18	117.1	14.4	68	166.7	20.5	18	216.4	26.5	68	266.0	32.6
19	18.9	02.3	69	68.5	08.4	19	118.1	14.5	69	167.7	20.6	19	217.4	26.7	69	267.0	32.8
20	19.9	02.4	70	69.5	08.5	20	119.1	14.6	70	168.7	20.7	20	218.4	26.8	70	268.0	32.9
21	20.8	02.6	71	70.5	08.6	121	120.1	14.7	171	169.7	20.8	221	219.3	26.9	271	269.0	33.0
22	21.8	02.7	72	71.5	08.8	22	121.1	14.9	72	170.7	20.9	22	220.3	27.0	72	270.0	33.1
23	22.8	02.8	73	72.5	08.9	23	122.1	15.0	73	171.7	21.1	23	221.3	27.2	73	271.0	33.2
24	23.8	02.9	74	73.4	09.0	24	123.1	15.1	74	172.7	21.2	24	222.3	27.3	74	271.9	33.4
25	24.8	03.0	75	74.4	09.1	25	124.1	15.2	75	173.7	21.3	25	223.3	27.4	75	272.9	33.5
26	25.8	03.2	76	75.4	09.3	126	125.1	15.3	176	174.7	21.4	226	224.3	27.5	276	273.9	33.6
27	26.8	03.3	77	76.4	09.4	27	126.0	15.5	77	175.7	21.6	27	225.3	27.6	77	274.9	33.7
28	27.8	03.4	78	77.4	09.5	28	127.0	15.6	78	176.7	21.7	28	226.3	27.8	78	275.9	33.9
29	28.8	03.5	79	78.4	09.6	29	128.0	15.7	79	177.7	21.8	29	227.3	27.9	79	276.9	34.0
30	29.8	03.7	80	79.4	09.7	30	129.0	15.8	80	178.7	21.9	30	228.3	28.0	80	277.9	34.1
31	30.8	03.8	81	80.4	09.9	131	130.0	16.0	181	179.6	22.0	231	229.3	28.1	281	278.9	34.2
32	31.8	03.9	82	81.4	10.0	32	131.0	16.1	82	180.6	22.2	32	230.3	28.3	82	279.9	34.3
33	32.8	04.0	83	82.4	10.1	33	132.0	16.2	83	181.6	22.3	33	231.3	28.4	83	280.9	34.5
34	33.7	04.1	84	83.4	10.2	34	133.0	16.3	84	182.6	22.4	34	232.2	28.5	84	281.9	34.6
35	34.7	04.3	85	84.4	10.4	35	134.0	16.4	85	183.6	22.5	35	233.2	28.6	85	282.9	34.7
36	35.7	04.4	86	85.4	10.5	136	135.0	16.6	186	184.6	22.7	236	234.2	28.7	286	283.9	34.8
37	36.7	04.5	87	86.3	10.6	37	136.0	16.7	87	185.6	22.8	37	235.2	28.9	87	284.8	34.9
38	37.7	04.6	88	87.3	10.7	38	137.0	16.8	88	186.6	22.9	38	236.2	29.0	88	285.8	35.1
39	38.7	04.8	89	88.3	10.8	39	138.0	16.9	89	187.6	23.0	39	237.2	29.1	89	286.8	35.2
40	39.7	04.9	90	89.3	11.0	40	139.0	17.1	90	188.6	23.1	40	238.2	29.2	90	287.8	35.3
41	40.7	05.0	91	90.3	11.1	141	139.9	17.2	191	189.6	23.3	241	239.2	29.3	291	288.8	35.4
42	41.7	05.1	92	91.3	11.2	42	140.9	17.3	92	190.6	23.4	42	240.2	29.5	92	289.8	35.5
43	42.7	05.2	93	92.3	11.3	43	141.9	17.4	93	191.6	23.5	43	241.2	29.6	93	290.8	35.7
44	43.7	05.4	94	93.3	11.5	44	142.9	17.5	94	192.5	23.6	44	242.2	29.7	94	291.8	35.8
45	44.7	05.5	95	94.3	11.6	45	143.9	17.7	95	193.5	23.7	45	243.2	29.8	95	292.8	35.9
46	45.7	05.6	96	95.3	11.7	146	144.9	17.8	196	194.5	23.9	246	244.2	29.9	296	293.8	36.0
47	46.6	05.7	97	96.3	11.8	47	145.9	17.9	97	195.5	24.0	47	245.1	30.1	97	294.8	36.2
48	47.6	05.8	98	97.3	11.9	48	146.9	18.0	98	196.5	24.1	48	246.1	30.2	98	295.8	36.3
49	48.6	06.0	99	98.3	12.1	49	147.9	18.1	99	197.5	24.2	49	247.1	30.3	99	296.8	36.4
50	49.6	06.1	100	99.3	12.2	150	148.9	18.2	200	198.5	24.3	250	248.1	30.4	300	297.8	36.5
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.1	51	50.5	07.1	101	100.0	14.1	151	149.5	21.0	201	199.1	28.0	251	248.6	34.9
2	02.0	00.3	52	51.5	07.2	02	101.0	14.2	52	150.5	21.2	02	200.0	28.1	52	249.6	35.1
3	03.0	00.4	53	52.5	07.4	03	102.0	14.3	53	151.5	21.3	03	201.0	28.3	53	250.5	35.2
4	04.0	00.6	54	53.5	07.5	04	103.0	14.5	54	152.5	21.4	04	202.0	28.4	54	251.5	35.4
5	05.0	00.7	55	54.5	07.7	05	104.0	14.6	55	153.5	21.6	05	203.0	28.5	55	252.5	35.5
6	05.9	00.8	56	55.5	07.8	106	105.0	14.8	156	154.5	21.7	206	204.0	28.7	256	253.5	35.6
7	06.9	01.0	57	56.4	07.9	07	106.0	14.9	57	155.5	21.9	07	205.0	28.8	57	254.5	35.8
8	07.9	01.1	58	57.4	08.1	08	107.0	15.0	58	156.5	22.0	08	206.0	29.0	58	255.5	35.9
9	08.9	01.3	59	58.4	08.2	09	107.9	15.2	59	157.5	22.1	09	207.0	29.1	59	256.5	36.1
10	09.9	01.4	60	59.4	08.4	10	108.9	15.3	60	158.4	22.3	10	208.0	29.2	60	257.5	36.2
11	10.9	01.5	61	60.4	08.5	111	109.9	15.5	161	159.4	22.4	211	209.0	29.4	261	258.5	36.3
12	11.9	01.7	62	61.4	08.6	12	110.9	15.6	62	160.4	22.6	12	209.9	29.5	62	259.5	36.5
13	12.9	01.8	63	62.4	08.8	13	111.9	15.7	63	161.4	22.7	13	210.9	29.6	63	260.4	36.6
14	13.9	01.9	64	63.4	08.9	14	112.9	15.9	64	162.4	22.8	14	211.9	29.8	64	261.4	36.7
15	14.9	02.1	65	64.4	09.0	15	113.9	16.0	65	163.4	23.0	15	212.9	29.9	65	262.4	36.9
16	15.8	02.2	66	65.4	09.2	116	114.9	16.1	166	164.4	23.1	216	213.9	30.1	266	263.4	37.0
17	16.8	02.4	67	66.4	09.3	17	115.9	16.3	67	165.4	23.2	17	214.9	30.2	67	264.4	37.2
18	17.8	02.5	68	67.3	09.5	18	116.9	16.4	68	166.4	23.4	18	215.9	30.3	68	265.4	37.3
19	18.8	02.6	69	68.3	09.6	19	117.8	16.6	69	167.4	23.5	19	216.9	30.5	69	266.4	37.4
20	19.8	02.8	70	69.3	09.7	20	118.8	16.7	70	168.4	23.7	20	217.9	30.6	70	267.4	37.6
21	20.8	02.9	71	70.3	09.9	121	119.8	16.8	171	169.3	23.8	221	218.9	30.8	271	268.4	37.7
22	21.8	03.1	72	71.3	10.0	22	120.8	17.0	72	170.3	23.9	22	219.8	30.9	72	269.4	37.9
23	22.8	03.2	73	72.3	10.2	23	121.8	17.1	73	171.3	24.1	23	220.8	31.0	73	270.4	38.0
24	23.8	03.3	74	73.3	10.3	24	122.8	17.3	74	172.3	24.2	24	221.8	31.2	74	271.3	38.1
25	24.8	03.5	75	74.3	10.4	25	123.8	17.4	75	173.3	24.4	25	222.8	31.3	75	272.3	38.3
26	25.7	03.6	76	75.3	10.6	126	124.8	17.5	176	174.3	24.5	226	223.8	31.5	276	273.3	38.4
27	26.7	03.8	77	76.3	10.7	27	125.8	17.7	77	175.3	24.6	27	224.8	31.6	77	274.3	38.6
28	27.7	03.9	78	77.2	10.9	28	126.8	17.8	78	176.3	24.8	28	225.8	31.7	78	275.3	38.7
29	28.7	04.0	79	78.2	11.0	29	127.7	18.0	79	177.3	24.9	29	226.8	31.9	79	276.3	38.8
30	29.7	04.2	80	79.2	11.1	30	128.7	18.1	80	178.3	25.1	30	227.8	32.0	80	277.3	39.0
31	30.7	04.3	81	80.2	11.3	131	129.7	18.2	181	179.2	25.2	231	228.8	32.2	281	278.3	39.1
32	31.7	04.5	82	81.2	11.4	32	130.7	18.4	82	180.2	25.3	32	229.7	32.3	82	279.3	39.3
33	32.7	04.6	83	82.2	11.6	33	131.7	18.5	83	181.2	25.5	33	230.7	32.4	83	280.3	39.4
34	33.7	04.7	84	83.2	11.7	34	132.7	18.7	84	182.2	25.6	34	231.7	32.6	84	281.2	39.5
35	34.7	04.9	85	84.2	11.8	35	133.7	18.8	85	183.2	25.8	35	232.7	32.7	85	282.2	39.7
36	35.7	05.0	86	85.2	12.0	136	134.7	18.9	186	184.2	25.9	236	233.7	32.9	286	283.2	39.8
37	36.6	05.2	87	86.2	12.1	37	135.7	19.1	87	185.2	26.0	37	234.7	33.0	87	284.2	40.0
38	37.6	05.3	88	87.1	12.2	38	136.7	19.2	88	186.2	26.2	38	235.7	33.1	88	285.2	40.1
39	38.6	05.4	89	88.1	12.4	39	137.7	19.3	89	187.2	26.3	39	236.7	33.3	89	286.2	40.2
40	39.6	05.6	90	89.1	12.5	40	138.6	19.5	90	188.2	26.4	40	237.7	33.4	90	287.2	40.4
41	40.6	05.7	91	90.1	12.7	141	139.6	19.6	191	189.1	26.6	241	238.7	33.5	291	288.2	40.5
42	41.6	05.8	92	91.1	12.8	42	140.6	19.8	92	190.1	26.7	42	239.7	33.7	92	289.2	40.6
43	42.6	06.0	93	92.1	12.9	43	141.6	19.9	93	191.1	26.9	43	240.6	33.8	93	290.2	40.8
44	43.6	06.1	94	93.1	13.1	44	142.6	20.0	94	192.1	27.0	44	241.6	34.0	94	291.1	40.9
45	44.6	06.3	95	94.1	13.2	45	143.6	20.2	95	193.1	27.1	45	242.6	34.1	95	292.1	41.1
46	45.6	06.4	96	95.1	13.4	146	144.6	20.3	196	194.1	27.3	246	243.6	34.2	296	293.1	41.2
47	46.5	06.5	97	96.1	13.5	47	145.6	20.5	97	195.1	27.4	47	244.6	34.4	97	294.1	41.3
48	47.5	06.7	98	97.0	13.6	48	146.6	20.6	98	196.1	27.6	48	245.6	34.5	98	295.1	41.5
49	48.5	06.8	99	98.0	13.8	49	147.6	20.7	99	197.1	27.7	49	246.6	34.7	99	296.1	41.6
50	49.5	07.0	100	99.0	13.9	150	148.5	20.9	200	198.1	27.8	250	247.6	34.8	300	297.1	41.8
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	01.0	00.2	51	50.4	08.0	101	99.8	15.8	151	149.1	23.6	201	198.5	31.4	251	247.9	39.3
2	02.0	00.3	52	51.4	08.1	02	100.7	16.0	52	150.1	23.8	02	199.5	31.6	52	248.9	39.4
3	03.0	00.5	53	52.3	08.3	03	101.7	16.1	53	151.1	23.9	03	200.5	31.7	53	249.9	39.6
4	04.0	00.6	54	53.3	08.4	04	102.7	16.3	54	152.1	24.1	04	201.5	31.9	54	250.9	39.7
5	04.9	00.8	55	54.3	08.6	05	103.7	16.4	55	153.1	24.2	05	202.5	32.1	55	251.9	39.9
6	05.9	00.9	56	55.3	08.8	105	104.7	16.6	156	154.1	24.4	206	203.5	32.2	256	252.9	40.0
7	06.9	01.1	57	56.3	08.9	07	105.7	16.7	57	155.1	24.6	07	204.5	32.4	57	253.8	40.2
8	07.9	01.3	58	57.3	09.1	08	106.7	16.9	58	156.1	24.7	08	205.4	32.5	58	254.8	40.4
9	08.9	01.4	59	58.3	09.2	09	107.7	17.0	59	157.0	24.9	09	206.4	32.7	59	255.8	40.5
10	09.9	01.6	60	59.3	09.4	10	108.6	17.2	60	158.0	25.0	10	207.4	32.8	60	256.8	40.7
11	10.9	01.7	61	60.2	09.5	111	109.6	17.4	161	159.0	25.2	211	208.4	33.0	261	257.8	40.8
12	11.9	01.9	62	61.2	09.7	12	110.6	17.5	62	160.0	25.3	12	209.4	33.2	62	258.8	41.0
13	12.8	02.0	63	62.2	09.9	13	111.6	17.6	63	161.0	25.5	13	210.4	33.3	63	259.8	41.1
14	13.8	02.2	64	63.2	10.0	14	112.6	17.8	64	162.0	25.6	14	211.4	33.5	64	260.8	41.3
15	14.8	02.3	65	64.2	10.2	15	113.6	18.0	65	163.0	25.8	15	212.4	33.6	65	261.7	41.4
16	15.8	02.5	66	65.2	10.3	116	114.6	18.1	166	164.0	26.0	216	213.3	33.8	266	262.7	41.6
17	16.8	02.7	67	66.2	10.5	17	115.6	18.3	67	164.9	26.1	17	214.3	33.9	67	263.7	41.8
18	17.8	02.8	68	67.2	10.6	18	116.5	18.5	68	165.9	26.3	18	215.3	34.1	68	264.7	41.9
19	18.8	03.0	69	68.2	10.8	19	117.5	18.6	69	166.9	26.4	19	216.3	34.3	69	265.7	42.1
20	19.8	03.1	70	69.1	10.9	20	118.5	18.8	70	167.9	26.6	20	217.3	34.4	70	266.7	42.2
21	20.7	03.3	71	70.1	11.1	121	119.5	18.9	171	168.9	26.7	221	218.3	34.6	271	267.7	42.4
22	21.7	03.4	72	71.1	11.3	22	120.5	19.1	72	169.9	26.9	22	219.3	34.7	72	268.7	42.5
23	22.7	03.6	73	72.1	11.4	23	121.5	19.2	73	170.9	27.1	23	220.3	34.9	73	269.6	42.7
24	23.7	03.8	74	73.1	11.6	24	122.5	19.4	74	171.9	27.2	24	221.2	35.0	74	270.6	42.9
25	24.7	03.9	75	74.1	11.7	25	123.5	19.6	75	172.8	27.4	25	222.2	35.2	75	271.6	43.0
26	25.7	04.1	76	75.1	11.9	126	124.5	19.7	176	173.8	27.5	226	223.2	35.3	276	272.6	43.2
27	26.7	04.2	77	76.1	12.0	27	125.4	19.9	77	174.8	27.7	27	224.2	35.5	77	273.6	43.3
28	27.7	04.4	78	77.0	12.2	28	126.4	20.0	78	175.8	27.8	28	225.2	35.7	78	274.6	43.5
29	28.6	04.5	79	78.0	12.4	29	127.4	20.2	79	176.8	28.0	29	226.2	35.8	79	275.6	43.6
30	29.6	04.7	80	79.0	12.5	30	128.4	20.3	80	177.8	28.2	30	227.2	36.0	80	276.6	43.8
31	30.6	04.8	81	80.0	12.7	131	129.4	20.5	181	178.8	28.3	231	228.2	36.1	281	277.5	43.9
32	31.6	05.0	82	81.0	12.8	32	130.4	20.6	82	179.8	28.5	32	229.1	36.3	82	278.5	44.1
33	32.6	05.2	83	82.0	13.0	33	131.4	20.8	83	180.7	28.6	33	230.1	36.4	83	279.5	44.3
34	33.6	05.3	84	83.0	13.1	34	132.4	21.0	84	181.7	28.8	34	231.1	36.6	84	280.5	44.4
35	34.6	05.5	85	84.0	13.3	35	133.3	21.1	85	182.7	28.9	35	232.1	36.8	85	281.5	44.6
36	35.6	05.6	86	84.9	13.5	136	134.3	21.3	186	183.7	29.1	236	233.1	36.9	286	282.5	44.7
37	36.5	05.8	87	85.9	13.6	37	135.3	21.4	87	184.7	29.2	37	234.1	37.1	87	283.5	44.9
38	37.5	05.9	88	86.9	13.8	38	136.3	21.6	88	185.7	29.4	38	235.1	37.2	88	284.5	45.0
39	38.5	06.1	89	87.9	13.9	39	137.3	21.7	89	186.7	29.6	39	236.1	37.4	89	285.4	45.2
40	39.5	06.3	90	88.9	14.1	40	138.3	21.9	90	187.7	29.7	40	237.0	37.5	90	286.4	45.4
41	40.5	06.4	91	89.9	14.2	141	139.3	22.1	191	188.7	29.9	241	238.0	37.7	291	287.4	45.5
42	41.5	06.6	92	90.9	14.4	42	140.3	22.2	92	189.6	30.0	42	239.0	37.8	92	288.4	45.7
43	42.5	06.7	93	91.9	14.5	43	141.2	22.4	93	190.6	30.2	43	240.0	38.0	93	289.4	45.8
44	43.5	06.9	94	92.8	14.7	44	142.2	22.5	94	191.6	30.3	44	241.0	38.2	94	290.4	46.0
45	44.4	07.0	95	93.8	14.9	45	143.2	22.7	95	192.6	30.5	45	242.0	38.3	95	291.4	46.1
46	45.4	07.2	96	94.8	15.0	146	144.2	22.8	196	193.6	30.7	246	243.0	38.5	296	292.4	46.3
47	46.4	07.4	97	95.8	15.2	47	145.2	23.0	97	194.6	30.8	47	244.0	38.6	97	293.3	46.5
48	47.4	07.5	98	96.8	15.3	48	146.2	23.1	98	195.6	31.0	48	244.9	38.8	98	294.3	46.6
49	48.4	07.7	99	97.8	15.5	49	147.2	23.3	99	196.6	31.1	49	245.9	38.9	99	295.3	46.8
50	49.4	07.8	100	98.8	15.6	150	148.2	23.5	200	197.5	31.3	250	246.9	39.1	300	296.3	46.9
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.2	51	50.2	08.8	101	99.5	17.5	151	148.7	26.2	201	197.9	34.9	251	247.2	43.5
2	02.0	00.3	52	51.2	09.0	102	100.4	17.7	152	149.7	26.4	202	198.9	35.0	252	248.2	43.7
3	03.0	00.5	53	52.2	09.2	103	101.4	17.9	153	150.7	26.5	203	199.9	35.2	253	249.2	43.9
4	03.9	00.7	54	53.2	09.4	104	102.4	18.0	154	151.7	26.7	204	200.9	35.4	254	250.1	44.0
5	04.9	00.9	55	54.2	09.5	105	103.4	18.2	155	152.6	26.9	205	201.9	35.5	255	251.1	44.2
6	05.9	01.0	56	55.1	09.7	106	104.4	18.4	156	153.6	27.1	206	202.9	35.7	256	252.1	44.4
7	06.9	01.2	57	56.1	09.9	107	105.4	18.6	157	154.6	27.2	207	203.9	35.9	257	253.1	44.6
8	07.9	01.4	58	57.1	10.1	108	106.4	18.7	158	155.6	27.4	208	204.8	36.1	258	254.1	44.7
9	08.9	01.6	59	58.1	10.2	109	107.3	18.9	159	156.6	27.6	209	205.8	36.2	259	255.1	44.9
10	09.8	01.7	60	59.1	10.4	110	108.3	19.1	160	157.6	27.7	210	206.8	36.4	260	256.0	45.1
11	10.8	01.9	61	60.1	10.6	111	109.3	19.2	161	158.6	27.9	211	207.8	36.6	261	257.0	45.3
12	11.8	02.1	62	61.1	10.8	112	110.3	19.4	162	159.5	28.1	212	208.8	36.8	262	258.0	45.4
13	12.8	02.3	63	62.0	10.9	113	111.3	19.6	163	160.5	28.3	213	209.8	36.9	263	259.0	45.6
14	13.8	02.4	64	63.0	11.1	114	112.3	19.8	164	161.5	28.4	214	210.7	37.1	264	260.0	45.8
15	14.8	02.6	65	64.0	11.2	115	113.3	19.9	165	162.5	28.6	215	211.7	37.3	265	261.0	46.0
16	15.8	02.8	66	65.0	11.4	116	114.2	20.1	166	163.5	28.8	216	212.7	37.5	266	262.0	46.1
17	16.7	02.9	67	66.0	11.6	117	115.2	20.3	167	164.5	29.0	217	213.7	37.6	267	262.9	46.3
18	17.7	03.1	68	67.0	11.8	118	116.2	20.5	168	165.4	29.1	218	214.7	37.8	268	263.9	46.5
19	18.7	03.3	69	68.0	12.0	119	117.2	20.6	169	166.4	29.3	219	215.7	38.0	269	264.9	46.6
20	19.7	03.5	70	68.9	12.1	120	118.2	20.8	170	167.4	29.3	220	216.7	38.1	270	265.9	46.8
21	20.7	03.6	71	69.9	12.3	121	119.2	21.0	171	168.4	29.7	221	217.6	38.3	271	266.9	47.0
22	21.7	03.8	72	70.9	12.5	122	120.1	21.2	172	169.4	29.8	222	218.6	38.5	272	267.9	47.2
23	22.7	04.0	73	71.9	12.7	123	121.1	21.3	173	170.4	30.0	223	219.6	38.7	273	268.8	47.3
24	23.6	04.2	74	72.9	12.8	124	122.1	21.5	174	171.4	30.2	224	220.6	38.8	274	269.8	47.5
25	24.6	04.3	75	73.9	13.0	125	123.1	21.7	175	172.3	30.5	225	221.6	39.0	275	270.8	47.7
26	25.6	04.5	76	74.8	13.2	126	124.1	21.8	176	173.3	30.5	226	222.6	39.2	276	271.8	47.9
27	26.6	04.7	77	75.8	13.4	127	125.1	22.0	177	174.3	30.7	227	223.5	39.4	277	272.8	48.0
28	27.6	04.9	78	76.8	13.5	128	126.1	22.2	178	175.3	30.9	228	224.5	39.5	278	273.8	48.2
29	28.6	05.0	79	77.8	13.7	129	127.0	22.4	179	176.3	31.0	229	225.5	39.7	279	274.8	48.4
30	29.5	05.2	80	78.8	13.9	130	128.0	22.5	180	177.3	31.2	230	226.5	39.9	280	275.7	48.6
31	30.5	05.4	81	79.8	14.0	131	129.0	22.7	181	178.2	31.4	231	227.5	40.1	281	276.7	48.7
32	31.5	05.5	82	80.8	14.2	132	130.0	22.9	182	179.2	31.6	232	228.5	40.2	282	277.7	48.9
33	32.5	05.7	83	81.7	14.4	133	131.0	23.1	183	180.2	31.7	233	229.5	40.4	283	278.7	49.1
34	33.5	05.9	84	82.7	14.6	134	132.0	23.2	184	181.2	31.9	234	230.4	40.6	284	279.7	49.2
35	34.5	06.1	85	83.7	14.7	135	132.9	23.4	185	182.2	32.1	235	231.4	40.7	285	280.7	49.4
36	35.5	06.2	86	84.7	14.9	136	133.9	23.6	186	183.2	32.3	236	232.4	40.9	286	281.6	49.6
37	36.4	06.4	87	85.7	15.1	137	134.9	23.8	187	184.2	32.4	237	233.4	41.1	287	282.6	49.8
38	37.4	06.6	88	86.7	15.3	138	135.9	23.9	188	185.1	32.6	238	234.4	41.3	288	283.6	49.9
39	38.4	06.8	89	87.6	15.4	139	136.9	24.1	189	186.1	32.8	239	235.4	41.4	289	284.6	50.1
40	39.4	06.9	90	88.6	15.6	140	137.9	24.3	190	187.1	32.9	240	236.3	41.6	290	285.6	50.3
41	40.4	07.1	91	89.6	15.8	141	138.9	24.4	191	188.1	33.1	241	237.3	41.8	291	286.6	50.5
42	41.4	07.3	92	90.6	16.0	142	139.8	24.6	192	189.1	33.3	242	238.3	42.0	292	287.6	50.6
43	42.3	07.5	93	91.6	16.1	143	140.8	24.8	193	190.1	33.5	243	239.3	42.1	293	288.5	50.8
44	43.3	07.6	94	92.6	16.3	144	141.8	25.0	194	191.0	33.6	244	240.3	42.3	294	289.5	51.0
45	44.3	07.8	95	93.6	16.5	145	142.8	25.1	195	192.0	33.8	245	241.3	42.5	295	290.5	51.2
46	45.3	08.0	96	94.5	16.6	146	143.8	25.3	196	193.0	34.0	246	242.3	42.7	296	291.5	51.3
47	46.3	08.1	97	95.5	16.8	147	144.8	25.5	197	194.0	34.2	247	243.2	42.8	297	292.5	51.5
48	47.3	08.3	98	96.5	17.0	148	145.7	25.7	198	195.0	34.3	248	244.2	43.0	298	293.5	51.7
49	48.3	08.5	99	97.5	17.2	149	146.7	25.8	199	196.0	34.5	249	245.2	43.2	299	294.5	51.8
50	49.2	08.7	100	98.5	17.3	150	147.7	26.0	200	197.0	34.7	250	246.2	43.4	300	295.4	52.0
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.2	51	50.1	09.7	101	99.1	19.3	151	148.2	28.8	201	197.3	38.4	251	246.4	47.9
2	02.0	00.4	52	51.0	09.9	02	100.1	19.5	52	149.2	29.0	02	198.3	38.5	52	247.4	48.1
3	02.9	00.6	53	52.0	10.1	03	101.1	19.7	53	150.2	29.2	03	199.3	38.7	53	248.3	48.3
4	03.9	00.8	54	53.0	10.3	04	102.1	19.8	54	151.2	29.4	04	200.2	38.9	54	249.3	48.5
5	04.9	01.0	55	54.0	10.5	05	103.1	20.0	55	152.1	29.6	05	201.2	39.1	55	250.3	48.7
6	05.9	01.1	56	55.4	10.7	106	104.0	20.2	156	153.1	29.8	206	202.2	39.3	256	251.3	48.8
7	06.9	01.3	57	56.0	10.9	07	105.0	20.4	57	154.1	30.0	07	203.2	39.5	57	252.3	49.0
8	07.9	01.5	58	56.9	11.1	08	106.0	20.6	58	155.1	30.1	08	204.2	39.7	58	253.2	49.2
9	08.8	01.7	59	57.9	11.3	09	107.0	20.8	59	156.1	30.3	09	205.2	39.9	59	254.2	49.4
10	09.8	01.9	60	58.9	11.4	10	108.0	21.0	60	157.1	30.5	10	206.1	40.1	60	255.2	49.6
11	10.8	02.1	61	59.9	11.6	111	109.0	21.2	161	158.0	30.7	211	207.1	40.3	261	256.2	49.8
12	11.8	02.3	62	60.9	11.8	12	109.9	21.4	62	159.0	30.9	12	208.1	40.4	62	257.2	50.0
13	12.8	02.5	63	61.8	12.0	13	110.9	21.6	63	160.0	31.1	13	209.1	40.6	63	258.2	50.2
14	13.7	02.7	64	62.8	12.2	14	111.9	21.8	64	161.0	31.3	14	210.1	40.8	64	259.1	50.4
15	14.7	02.9	65	63.8	12.4	15	112.9	21.9	65	162.0	31.5	15	211.0	41.0	65	260.1	50.6
16	15.7	03.1	66	64.8	12.6	116	113.9	22.1	166	162.9	31.7	216	212.0	41.2	266	261.1	50.8
17	16.7	03.2	67	65.8	12.8	17	114.8	22.3	67	163.9	31.9	17	213.0	41.4	67	262.1	50.9
18	17.7	03.4	68	66.7	13.0	18	115.8	22.5	68	164.9	32.1	18	214.0	41.6	68	263.1	51.1
19	18.7	03.6	69	67.7	13.2	19	116.8	22.7	69	165.9	32.2	19	215.0	41.8	69	264.0	51.3
20	19.6	03.8	70	68.7	13.4	20	117.8	22.9	70	166.9	32.4	20	215.9	42.0	70	265.0	51.5
21	20.6	04.0	71	69.7	13.5	121	118.8	23.1	171	167.9	32.6	221	216.9	42.2	271	266.0	51.7
22	21.6	04.2	72	70.7	13.7	22	119.8	23.3	72	168.8	32.8	22	217.9	42.4	72	267.0	51.9
23	22.6	04.4	73	71.7	13.9	23	120.7	23.5	73	169.8	33.0	23	218.9	42.5	73	268.0	52.1
24	23.6	04.6	74	72.6	14.1	24	121.7	23.7	74	170.8	33.2	24	219.9	42.7	74	269.0	52.3
25	24.5	04.8	75	73.6	14.3	25	122.7	23.9	75	171.8	33.4	25	220.9	42.9	75	269.9	52.5
26	25.5	05.0	76	74.6	14.5	126	123.7	24.0	176	172.8	33.6	226	221.8	43.1	276	270.9	52.7
27	26.5	05.2	77	75.6	14.7	27	124.7	24.2	77	173.7	33.8	27	222.8	43.3	77	271.9	52.9
28	27.5	05.3	78	76.6	14.9	28	125.6	24.4	78	174.7	34.0	28	223.8	43.5	78	272.9	53.0
29	28.5	05.5	79	77.5	15.1	29	126.6	24.6	79	175.7	34.2	29	224.8	43.7	79	273.9	53.2
30	29.4	05.7	80	78.5	15.3	30	127.6	24.8	80	176.7	34.3	30	225.8	43.9	80	274.8	53.4
31	30.4	05.9	81	79.5	15.5	131	128.6	25.0	181	177.7	34.5	231	226.7	44.1	281	275.8	53.6
32	31.4	06.1	82	80.5	15.6	32	129.6	25.2	82	178.6	34.7	32	227.7	44.3	82	276.8	53.8
33	32.4	06.3	83	81.5	15.8	33	130.6	25.4	83	179.6	54.9	33	228.7	44.5	83	277.8	54.0
34	33.4	06.5	84	82.5	16.0	34	131.5	25.6	84	180.6	35.1	34	229.7	44.6	84	278.8	54.2
35	34.4	06.7	85	83.4	16.2	35	132.5	25.8	85	180.6	35.3	35	230.7	44.8	85	279.8	54.4
36	35.3	06.9	86	84.4	16.4	136	133.5	25.9	186	182.6	35.5	236	231.7	45.0	286	280.7	54.6
37	36.3	07.1	87	85.4	16.6	37	134.5	26.1	87	183.6	35.7	37	232.6	45.2	87	281.7	54.8
38	37.3	07.3	88	86.4	16.8	38	135.5	26.3	88	184.5	35.9	38	233.6	45.4	88	282.7	55.0
39	38.3	07.4	89	87.4	17.0	39	136.4	26.5	89	185.5	36.1	39	234.6	45.6	89	283.7	55.1
40	39.3	07.6	90	88.3	17.2	40	137.4	26.7	90	186.5	36.3	40	235.6	45.8	90	284.7	55.3
41	40.2	07.8	91	89.3	17.4	141	138.4	26.9	191	187.5	36.4	241	236.6	46.0	291	285.6	55.5
42	41.2	08.0	92	90.3	17.6	42	139.4	27.1	92	188.5	36.6	42	237.5	46.2	92	286.6	55.7
43	42.2	08.2	93	91.3	17.7	43	140.4	27.3	93	189.4	36.8	43	238.5	46.4	93	287.6	55.9
44	43.2	08.4	94	92.3	17.9	44	141.3	27.5	94	190.4	37.0	44	239.5	46.6	94	188.6	56.0
45	44.2	08.6	95	93.3	18.1	45	142.3	27.7	95	191.4	37.2	45	240.5	46.7	95	289.6	56.3
46	45.2	08.8	96	94.2	18.3	146	143.3	27.9	196	192.4	37.4	246	241.5	47.0	296	290.5	56.5
47	46.1	09.0	97	95.2	18.5	47	144.3	28.0	97	193.4	37.6	47	242.5	47.1	97	291.5	56.7
48	47.1	09.2	98	96.2	18.7	48	145.3	28.2	98	194.4	37.8	48	243.4	47.3	98	292.5	56.9
49	48.1	09.3	99	97.2	18.9	49	146.3	28.4	99	195.4	38.0	49	244.4	47.5	99	293.5	57.0
50	49.1	09.5	100	98.2	19.1	150	147.2	28.6	200	196.3	38.2	250	245.4	47.7	300	294.5	57.2
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 79 Deg.

C 2

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	01.0	00.2	51	49.9	10.6	101	98.8	21.0	151	147.7	31.4	201	196.6	41.8	251	245.5	52.2
2	02.0	00.4	52	50.9	10.8	02	99.8	21.2	52	148.7	31.6	02	197.6	42.0	52	246.5	52.4
3	02.9	00.6	53	51.8	11.0	03	100.7	21.4	53	149.6	31.8	03	198.5	42.2	53	247.4	52.6
4	03.9	00.8	54	52.8	11.2	04	101.7	21.6	54	150.6	32.0	04	199.5	42.4	54	248.4	52.8
5	04.9	01.0	55	53.8	11.4	05	102.7	21.8	55	151.6	32.2	05	200.5	42.6	55	249.4	53.0
6	05.9	01.2	56	54.8	11.6	106	103.7	22.0	156	152.6	32.4	206	201.5	42.8	256	250.4	53.2
7	06.8	01.5	57	55.7	11.9	07	104.6	22.3	57	153.5	32.7	07	202.4	43.1	57	251.3	53.5
8	07.8	01.7	58	56.7	12.1	08	105.6	22.5	58	154.5	32.9	08	203.4	43.3	58	252.3	53.7
9	08.8	01.9	59	57.7	12.3	09	106.6	22.7	59	155.5	33.1	09	204.4	43.5	59	253.3	53.9
10	09.8	02.1	60	58.7	12.5	10	107.6	22.9	60	156.5	33.3	10	205.4	43.7	60	254.3	54.1
11	10.8	02.3	61	59.7	12.7	111	108.6	23.1	161	157.5	33.5	211	206.4	43.9	261	255.3	54.3
12	11.7	02.5	62	60.6	12.9	12	109.5	23.3	62	158.4	33.7	12	207.3	44.1	62	256.2	54.5
13	12.7	02.7	63	61.6	13.1	13	110.5	23.5	63	159.4	33.9	13	208.3	44.3	63	257.2	54.7
14	13.7	02.9	64	62.6	13.3	14	111.5	23.7	64	160.4	34.1	14	209.3	44.5	64	258.2	54.9
15	14.7	03.1	65	63.6	13.5	15	112.5	23.9	65	161.4	34.3	15	210.3	44.7	65	259.2	55.1
16	15.6	03.3	66	64.5	13.7	116	113.4	24.1	166	162.3	34.5	216	211.2	44.9	266	260.1	55.3
17	16.6	03.5	67	65.5	13.9	17	114.4	24.3	67	163.3	34.7	17	212.2	45.1	67	261.1	55.5
18	17.6	03.7	68	66.5	14.1	18	115.4	24.5	68	164.3	34.9	18	213.2	45.3	68	262.1	55.7
19	18.6	04.0	69	67.5	14.4	19	116.4	24.8	69	165.3	35.2	19	214.2	45.6	69	263.1	56.0
20	19.6	04.2	70	68.5	14.6	20	117.4	25.0	70	166.3	35.4	20	215.2	45.8	70	264.1	56.2
21	20.5	04.4	71	69.4	14.8	121	118.3	25.2	171	167.2	35.6	221	216.1	46.0	271	265.0	56.4
22	21.5	04.6	72	70.4	15.0	22	119.3	25.4	72	168.2	35.8	22	217.1	46.2	72	266.0	56.6
23	22.5	04.8	73	71.4	15.2	23	120.3	25.6	73	169.2	36.0	23	218.1	46.4	73	267.0	56.8
24	23.5	05.0	74	72.4	15.4	24	121.3	25.8	74	170.2	36.2	24	219.1	46.6	74	268.0	57.0
25	24.5	05.2	75	73.4	15.6	25	122.3	26.0	75	171.2	36.4	25	220.1	46.8	75	269.0	57.2
26	25.4	05.4	76	74.3	15.8	126	123.2	26.2	176	172.1	36.6	226	221.0	47.0	276	269.9	57.4
27	26.4	05.6	77	75.3	16.0	27	124.2	26.4	77	173.1	36.8	27	222.0	47.2	77	270.9	57.6
28	27.4	05.8	78	76.3	16.2	28	125.2	26.6	78	174.1	37.0	28	223.0	47.4	78	271.9	57.8
29	28.4	06.0	79	77.3	16.4	29	126.2	26.8	79	175.1	37.2	29	224.0	47.6	79	272.9	58.0
30	29.3	06.2	80	78.2	16.6	30	127.1	27.0	80	176.0	37.4	30	224.9	47.8	80	273.8	58.2
31	30.3	06.4	81	79.2	16.8	131	128.1	27.2	181	177.0	37.6	231	225.9	48.0	281	274.8	58.4
32	31.3	06.7	82	80.2	17.1	32	129.1	27.5	82	178.0	37.9	32	226.9	48.3	82	275.8	58.7
33	32.3	06.9	83	81.2	17.3	33	130.1	27.7	83	179.0	38.1	33	227.9	48.5	83	276.8	58.9
34	33.3	07.1	84	82.2	17.5	34	131.1	27.9	84	180.0	38.3	34	228.9	48.7	84	277.8	59.1
35	34.2	07.3	85	83.1	17.7	35	132.0	28.1	85	180.9	38.5	35	229.8	48.9	85	278.7	59.3
36	35.2	07.5	86	84.1	17.9	136	133.0	28.3	186	181.9	38.7	236	230.8	49.1	286	279.7	59.5
37	36.2	07.7	87	85.1	18.0	37	134.0	28.5	87	182.9	38.9	37	231.8	49.3	87	280.7	59.7
38	37.2	07.9	88	86.1	18.3	38	135.0	28.7	88	183.9	39.1	38	232.8	49.5	88	281.7	59.9
39	38.1	08.1	89	87.0	18.5	39	135.9	28.9	89	184.8	39.3	39	233.7	49.7	89	282.6	60.1
40	39.1	08.3	90	88.0	18.7	40	136.9	29.1	90	185.8	39.5	40	234.7	49.9	90	283.6	60.3
41	40.1	08.5	91	89.0	18.9	141	137.9	29.3	191	186.8	39.7	241	235.7	50.1	291	284.6	60.5
42	41.1	08.7	92	90.0	19.1	42	138.9	29.5	92	187.8	39.9	42	236.7	50.3	92	285.6	60.7
43	42.1	08.9	93	91.0	19.3	43	139.9	29.7	93	188.8	40.1	43	237.7	50.5	93	286.6	60.9
44	43.0	09.2	94	91.9	19.6	44	140.8	30.0	94	189.7	40.4	44	238.6	50.8	94	287.5	61.2
45	44.0	09.4	95	92.9	19.8	45	141.8	30.2	95	190.7	40.6	45	239.6	51.0	95	288.5	61.4
46	45.0	09.6	96	93.9	20.0	146	142.8	30.4	196	191.7	40.8	246	240.6	51.2	296	289.5	61.6
47	46.0	09.8	97	94.9	20.2	47	143.8	30.6	97	192.7	41.0	47	241.6	51.4	97	290.5	61.8
48	46.9	10.0	98	95.8	20.4	48	144.7	30.8	98	193.6	41.2	48	242.5	51.6	98	291.4	62.0
49	47.9	10.2	99	96.8	20.6	49	145.7	31.0	99	194.6	41.4	49	243.5	51.8	99	292.4	62.2
50	48.9	10.4	100	97.8	20.8	150	146.7	31.2	200	195.6	41.6	250	244.5	52.0	300	293.4	62.4
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.2	51	49.7	11.5	101	98.4	22.7	151	147.1	34.0	201	195.9	45.2	251	244.6	56.5
2	01.9	00.4	52	50.7	11.7	02	99.4	22.9	52	148.1	34.2	02	196.8	45.4	52	245.5	56.7
3	02.9	00.7	53	51.6	11.9	03	100.4	23.2	53	149.1	34.4	03	197.8	45.7	53	246.5	56.9
4	03.9	00.9	54	52.6	12.1	04	101.3	23.4	54	150.1	34.6	04	198.8	45.9	54	247.5	57.1
5	04.9	01.1	55	53.6	12.4	05	102.3	23.6	55	151.0	34.9	05	199.7	46.1	55	248.5	57.4
6	05.8	01.3	56	54.6	12.6	106	103.3	23.8	156	152.0	35.1	206	200.7	46.3	256	249.4	57.6
7	06.8	01.6	57	55.5	12.8	07	104.3	24.1	57	153.0	35.3	07	201.7	46.6	57	250.4	57.8
8	07.8	01.8	58	56.5	13.0	08	105.3	24.3	58	154.0	35.5	08	202.7	46.8	58	251.4	58.0
9	08.8	02.0	59	57.5	13.3	09	106.2	24.5	59	154.9	35.8	09	203.6	47.0	59	252.4	58.3
10	09.7	02.2	60	58.5	13.5	10	107.2	24.7	60	155.9	36.0	10	204.6	47.2	60	253.3	58.5
11	10.7	02.5	61	59.4	13.7	111	108.2	25.	161	156.9	36.2	211	205.6	47.5	261	254.3	58.7
12	11.7	02.7	62	60.4	13.9	12	109.1	25.	62	157.9	36.4	12	206.6	47.7	62	255.3	58.9
13	12.7	02.9	63	61.4	14.2	13	110.1	25.4	63	158.8	36.7	13	207.5	47.9	63	256.3	59.2
14	13.6	03.1	64	62.4	14.4	14	111.1	25.6	64	159.8	36.9	14	208.5	48.1	64	257.2	59.4
15	14.6	03.4	65	63.3	14.6	15	112.1	25.9	65	160.8	37.1	15	209.5	48.4	65	258.2	59.6
16	15.6	03.6	66	64.3	14.8	116	113.0	26.1	166	161.7	37.3	216	210.5	48.6	266	259.2	59.8
17	16.6	03.8	67	65.3	15.1	17	114.0	26.3	67	162.7	37.6	17	211.4	48.8	67	260.2	60.1
18	17.5	04.0	68	66.2	15.3	18	115.0	26.5	68	163.7	37.8	18	212.4	49.0	68	261.1	60.3
19	18.5	04.3	69	67.2	15.5	19	116.0	26.8	69	164.7	38.0	19	213.4	49.3	69	262.1	60.5
20	19.5	04.5	70	68.2	15.7	20	116.9	27.0	70	165.6	38.2	20	214.4	49.5	70	263.1	60.7
21	20.5	04.7	71	69.2	16.0	121	117.9	27.2	171	166.6	38.5	221	215.3	49.7	271	264.1	61.0
22	21.4	04.9	72	70.2	16.2	22	118.9	27.4	72	167.6	38.7	22	216.3	49.9	72	265.0	61.2
23	22.4	05.2	73	71.1	16.4	23	119.8	27.7	73	168.6	38.9	23	217.3	50.2	73	266.0	61.4
24	23.4	05.4	74	72.1	16.6	24	120.8	27.9	74	169.5	39.1	24	218.3	50.4	74	267.0	61.6
25	24.4	05.6	75	73.1	16.9	25	121.8	28.1	75	170.5	39.4	25	219.2	50.6	75	268.0	61.9
26	25.3	05.8	76	74.1	17.1	126	122.8	28.3	176	171.5	39.6	226	220.2	50.8	276	268.9	62.1
27	26.3	06.1	77	75.0	17.3	27	123.7	28.6	77	172.5	39.8	27	221.2	51.1	77	269.9	62.3
28	27.3	06.3	78	76.0	17.5	28	124.7	28.8	78	173.4	40.0	28	222.2	51.3	78	270.9	62.5
29	28.3	06.5	79	77.0	17.8	29	125.7	29.0	79	174.4	40.3	29	223.1	51.5	79	271.9	62.8
30	29.2	06.7	80	78.0	18.0	30	126.7	29.2	80	175.4	40.5	30	224.1	51.7	80	272.8	63.0
31	30.2	07.0	81	78.9	18.2	131	127.6	29.5	181	176.4	40.7	231	225.1	52.0	281	273.8	63.2
32	31.2	07.2	82	79.9	18.4	32	128.6	29.7	82	177.3	40.9	32	226.1	52.2	82	274.8	63.4
33	32.1	07.4	83	80.9	18.7	33	129.6	29.9	83	178.3	41.2	33	227.0	52.4	83	275.8	63.7
34	33.1	07.6	84	81.8	18.9	34	130.6	30.1	84	179.3	41.4	34	228.0	52.6	84	276.7	63.9
35	34.1	07.9	85	82.8	19.1	35	131.5	30.4	85	180.3	41.6	35	229.0	52.9	85	277.7	64.1
36	35.1	08.1	86	83.8	19.3	136	132.5	30.6	186	181.2	41.8	236	230.0	53.1	286	278.7	64.3
37	36.1	08.3	87	84.8	19.6	37	133.5	30.8	87	182.2	42.1	37	230.9	53.3	87	279.6	64.6
38	37.0	08.5	88	85.7	19.8	38	134.5	31.0	88	183.2	42.3	38	231.9	53.5	88	280.6	64.8
39	38.0	08.8	89	86.7	20.0	39	135.4	31.3	89	184.2	42.5	39	232.9	53.8	89	281.6	65.0
40	39.0	09.0	90	87.7	20.2	40	136.4	31.5	90	185.1	42.7	40	233.9	54.0	90	282.6	65.2
41	39.9	09.2	91	88.7	20.5	141	137.4	31.7	191	186.1	43.0	241	234.8	54.2	291	283.5	65.5
42	40.9	09.4	92	89.6	20.7	42	138.4	31.9	92	187.1	43.2	42	235.8	54.4	92	284.5	65.7
43	41.9	09.7	93	90.6	20.9	43	139.3	32.2	93	188.1	43.4	43	236.8	54.7	93	285.5	65.9
44	42.9	09.9	94	91.6	21.1	44	140.3	32.4	94	189.0	43.6	44	237.8	54.9	94	286.5	66.1
45	43.8	10.1	95	92.6	21.4	45	141.3	32.6	95	190.0	43.9	45	238.7	55.1	95	287.4	66.4
46	44.8	10.3	96	93.5	21.6	146	142.3	32.8	196	191.0	44.1	246	239.7	55.3	296	288.4	66.6
47	45.8	10.6	97	94.5	21.8	47	143.2	33.1	97	192.0	44.3	47	240.7	55.6	97	289.4	66.8
48	46.8	10.8	98	95.5	22.0	48	144.2	33.3	98	192.9	44.5	48	241.6	55.8	98	290.4	67.0
49	47.7	11.0	99	96.5	22.3	49	145.2	33.5	99	193.9	44.8	49	242.6	56.0	99	291.3	67.3
50	48.7	11.2	100	97.4	22.5	150	146.2	33.7	200	194.9	45.0	250	243.6	56.2	300	292.3	67.5
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.2	51	49.5	12.3	101	98.0	24.4	151	146.5	36.5	201	195.0	48.6	251	243.5	60.7
2	01.9	00.5	52	50.5	12.6	02	99.0	24.7	52	147.5	36.8	02	196.0	48.9	52	244.5	61.0
3	2.9	00.7	53	51.4	12.8	03	99.9	24.9	53	148.5	37.0	03	197.0	49.1	53	245.5	61.2
4	03.9	01.0	54	52.4	13.1	04	100.9	25.2	54	149.4	37.3	04	197.9	49.4	54	246.4	61.5
5	04.9	01.2	55	53.4	13.3	05	101.9	25.4	55	150.4	37.5	05	198.9	49.6	55	247.4	61.7
6	05.8	01.5	56	54.3	13.6	106	102.8	25.7	156	151.4	37.7	206	199.9	49.9	256	248.4	62.0
7	06.8	01.7	57	55.3	13.8	07	103.8	25.9	57	152.3	38.0	07	200.8	50.1	57	249.4	62.2
8	07.8	01.9	58	56.3	14.0	08	104.8	26.1	58	153.3	38.2	08	201.8	50.3	58	250.3	62.4
9	08.7	02.2	59	57.2	14.3	09	105.8	26.4	59	154.3	38.5	09	202.8	50.6	59	251.3	62.7
10	09.7	02.4	60	58.2	14.5	10	106.7	26.6	60	155.2	38.7	10	203.8	50.8	60	252.3	62.9
11	10.7	02.7	61	59.2	14.8	111	107.7	26.9	161	156.2	39.0	211	204.7	51.1	261	253.2	63.2
12	11.6	02.9	62	60.2	15.0	12	108.7	27.1	62	157.2	39.2	12	205.7	51.3	62	254.2	63.4
13	12.6	03.1	63	61.1	15.2	13	109.6	27.3	63	158.2	39.4	13	206.7	51.5	63	255.0	63.6
14	13.6	03.4	64	62.1	15.5	14	110.6	27.6	64	159.1	39.7	14	207.6	51.8	64	256.2	63.9
15	14.6	03.6	65	63.1	15.7	15	111.6	27.8	65	160.1	39.9	15	208.6	52.0	65	257.1	64.1
16	15.5	03.9	66	64.0	16.0	116	112.6	28.1	166	161.1	40.2	216	209.6	52.3	266	258.1	64.4
17	16.5	04.1	67	65.0	16.2	17	113.5	28.3	67	162.0	40.4	17	210.5	52.5	67	259.1	64.6
18	17.5	04.4	68	66.0	16.5	18	114.5	28.6	68	163.0	40.7	18	211.5	52.8	68	260.0	64.9
19	18.4	04.6	69	66.9	16.7	19	115.5	28.8	69	164.0	40.9	19	212.5	53.0	69	261.0	65.1
20	19.4	04.8	70	67.9	16.9	20	116.4	29.0	70	164.9	41.1	20	213.5	53.2	70	262.0	65.3
21	20.4	05.1	71	68.9	17.2	121	117.4	29.3	171	165.9	41.4	221	214.4	53.5	271	261.9	65.6
22	21.3	05.3	72	69.9	17.4	22	118.4	29.5	72	166.9	41.6	22	215.4	53.7	72	263.9	65.8
23	22.3	05.6	73	70.8	17.7	23	119.3	29.8	73	167.9	41.9	23	216.4	54.0	73	264.9	66.1
24	23.3	05.8	74	71.8	17.9	24	120.3	30.0	74	168.8	42.1	24	217.3	54.2	74	265.9	66.3
25	24.3	06.0	75	72.8	18.1	25	121.3	30.2	75	169.8	42.3	25	218.3	54.4	75	266.8	66.5
26	25.2	06.3	76	73.7	18.4	126	122.3	30.5	176	170.8	42.6	226	219.3	54.7	276	267.8	66.8
27	26.2	06.5	77	74.7	18.6	27	123.2	30.7	77	171.7	42.8	27	220.3	54.9	77	268.8	67.0
28	27.1	06.8	78	75.7	18.9	28	124.2	31.0	78	172.7	43.1	28	221.2	55.2	78	269.7	67.3
29	28.1	07.0	79	76.7	19.1	29	125.2	31.2	79	173.7	43.3	29	222.2	55.4	79	270.7	67.5
30	29.1	07.3	80	77.6	19.4	30	126.1	31.5	80	174.6	43.6	30	223.2	55.7	80	271.7	67.8
31	30.1	07.5	81	78.6	19.6	131	127.1	31.7	181	175.6	43.8	231	224.1	55.9	281	272.6	68.0
32	31.0	07.7	82	79.6	19.8	32	128.1	31.9	82	176.6	44.0	32	225.1	56.1	82	273.6	68.2
33	32.0	08.0	83	80.5	20.1	33	129.0	32.2	83	177.6	44.3	33	226.1	56.4	83	274.6	68.5
34	33.0	08.2	84	81.5	20.3	34	130.0	32.4	84	178.5	44.5	34	227.0	56.6	84	275.6	68.7
35	34.0	08.5	85	82.5	20.6	35	131.0	32.7	85	179.5	44.8	35	228.0	56.9	85	276.5	69.0
36	34.9	08.7	86	83.4	20.8	136	132.0	32.9	186	180.5	45.0	236	229.0	57.1	286	277.5	69.2
37	35.9	09.0	87	84.4	21.1	37	132.9	33.2	87	181.4	45.3	37	230.0	57.4	87	278.5	69.5
38	36.9	09.2	88	85.4	21.3	38	133.9	33.4	88	182.4	45.5	38	230.9	57.6	88	279.4	69.7
39	37.8	09.4	89	86.4	21.5	39	134.9	33.6	89	183.4	45.7	39	231.9	57.8	89	280.4	69.9
40	38.8	09.7	90	87.3	21.8	40	135.8	33.9	90	184.4	46.0	40	232.9	58.1	90	281.4	70.2
41	39.8	09.9	91	88.3	22.0	141	136.8	34.1	191	185.3	46.2	241	233.8	58.3	291	282.3	70.4
42	40.8	10.2	92	89.3	22.3	42	137.8	34.4	92	186.3	46.5	42	234.8	58.6	92	283.3	70.7
43	41.7	10.4	93	90.2	22.5	43	138.7	34.6	93	187.3	46.7	43	235.8	58.8	93	284.3	70.9
44	42.7	10.6	94	91.2	22.7	44	139.7	34.8	94	188.2	46.9	44	236.7	59.0	94	285.3	71.1
45	43.7	10.9	95	92.2	23.0	45	140.7	35.1	95	189.2	47.2	45	237.7	59.3	95	286.2	71.4
46	44.6	11.1	96	93.1	23.2	146	141.7	35.3	196	190.2	47.4	246	238.7	59.5	296	287.2	71.6
47	45.6	11.4	97	94.1	23.5	47	142.6	35.6	97	191.1	47.7	47	239.7	59.8	97	288.2	71.9
48	46.6	11.6	98	95.1	23.7	48	143.6	35.8	98	192.1	47.9	48	240.6	60.0	98	289.1	72.1
49	47.5	11.9	99	96.1	24.0	49	144.6	36.1	99	193.1	48.2	49	241.6	60.3	99	290.1	72.4
50	48.5	12.1	100	97.0	24.2	150	145.5	36.3	200	194.1	48.4	250	242.6	60.5	300	291.1	72.6
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 76 Deg.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00,3	51	49,3	13.2	101	97.6	26.1	151	145,8	39 1	201	194.1	52 0	251	242.4	65.0
2	01.9	00 5	52	50.2	13.5	02	98.5	26.4	52	146.8	39.3	02	195.1	52.3	52	243.4	65.2
3	02.9	00.8	53	51.2	13.7	03	99.5	26.7	53	147.8	39.6	03	196.1	52.5	53	244.4	65.5
4	03.9	01.0	54	52.2	14.0	04	100.5	26.9	54	148.7	39.9	04	197.0	52.8	54	245.3	65.7
5	04.8	01.3	55	53.1	14.2	05	101 4	27,2	55	149.7	40 1	05	198.0	53 1	55	246 3	66.0
6	05.8	01.6	56	54 1	14.5	106	102.4	27.4	156	150.7	40.4	206	199.0	53.3	256	247.3	66.3
7	06.8	01.8	57	55,1	14.8	07	103.4	27.7	57	151,6	40.6	07	199.9	53.6	57	248.2	66.5
8	07.7	02.1	58	56.0	15.0	08	104.3	28.0	58	152 6	40.9	08	200.9	53.8	58	249 2	66.8
9	08.7	02.3	59	57.0	15.3	09	105.3	28.2	59	153.6	41.1	09	201.9	54 1	59	250.2	67.0
10	09.7	02.6	60	58.0	15.5	10	106.2	28.5	60	154.5	41.4	10	202.8	54.3	60	251.1	67.3
11	10,6	02,8	61	58,9	15.8	111	107.2	28.7	161	155,5	41.7	211	203.8	54.6	261	252.1	67.5
12	11.6	03.1	62	59 9	16.0	12	108.2	29.0	62	156 5	41.9	12	204.8	54.9	62	253 1	67.8
13	12.6	03 4	63	60.9	16.3	13	109 1	29.2	63	157,4	42.2	13	205.7	55.1	63	254.0	68,1
14	13.5	03.6	64	61.8	16.6	14	110.1	29 5	64	158.4	42.4	14	206.7	55.4	64	255.0	68.3
15	14 5	03.9	65	62.8	16.8	15	111.1	29.8	65	159.4	42.7	15	207.7	55.6	65	256.0	68,6
16	15.5	04.1	66	63 7	17.1	116	112.0	30.0	166	160 3	43.0	216	208.6	55 9	266	256.9	68.8
17	16.4	04.4	67	64.7	17.3	17	113 0	30.3	67	161.3	43.2	17	209 6	56.1	67	257.9	69.1
18	17.4	04.7	68	65.7	17.6	18	114 0	30.5	68	162.3	43.5	18	210 6	56.4	68	258.9	69.4
19	18.4	04.9	69	66.6	17,9	19	114.9	30.8	69	163.2	43.7	19	211.5	56.7	69	259.8	69.6
20	19.3	05 2	70	67 6	18,1	20	115.9	31.1	70	164.2	44,0	20	212.5	56.9	70	260.8	69.9
21	20.3	05 4	71	68,6	18.4	121	116.9	31.3	171	165.2	44 3	221	213.5	57,2	271	261.8	70.1
22	21.2	05,7	72	69.5	18.6	22	117.8	31 6	72	166.1	44.5	22	214.4	57.5	72	262.7	70.4
23	22.2	06.0	73	70.5	18.9	23	118.8	31.8	73	167.1	44.8	23	215 4	57.7	73	263.7	70.7
24	23.2	06.2	74	71.5	19.2	24	119 8	32.1	74	168.1	45.0	24	216.4	58.0	74	264.7	70.9
25	24.1	06 5	75	72,4	19.4	25	120 7	32.4	75	169.0	45.3	25	217 3	58.2	75	265.6	71.2
26	25 1	06.7	76	73.4	19 7	126	121.7	32.6	176	170 0	45.5	226	218.3	58.5	276	266 6	71.4
27	26,1	07.0	77	74.4	19.9	27	122.7	32.9	77	171.0	45.8	27	219.3	58 7	77	267.6	71.7
28	27.0	07.2	78	75.3	20.2	28	123 6	33,1	78	171.9	46.1	28	220.2	59.0	78	268.5	71.9
29	28.0	07.5	79	76.3	20 4	29	124.6	33.4	79	172.9	46.3	29	221.2	59.3	79	269.5	72.2
30	29.0	07.8	80	77.3	20 7	30	125.6	33.6	80	173.9	46.6	30	222.2	59.5	80	270.5	72.5
31	29 9	08 0	81	78.2	21.0	131	126.5	33.9	181	174.8	46.8	231	223.1	59.8	281	271.4	72.7
32	30.9	08.3	82	79.2	21.2	32	127.5	34,2	82	175.8	47.1	32	224.1	60.0	82	272.4	73.0
33	31 9	08,5	83	80.2	21.5	33	128.5	34.4	83	176.8	47.4	33	225.1	60,3	83	273.4	73.2
34	32.8	08,8	84	81.1	21.7	34	129 4	34 7	84	177.7	47.6	34	226.0	60.6	84	274 3	73,5
35	33.8	09,1	85	82.1	22.0	35	130.4	34 9	85	178.7	47.9	35	227.0	60.8	85	275.3	73.8
36	34,8	09.3	86	83,1	22.3	136	131.4	35.2	186	179.7	48,1	236	228.0	61.1	286	276,2	74.0
37	35.7	09,6	87	84.0	22.5	37	132,3	35.5	87	180.6	48.4	37	228.9	61.3	87	277.2	74.3
38	36.7	09.8	88	85.0	22.8	38	133.3	35 7	88	181.6	48,7	38	229.9	61,6	88	278.2	74.5
39	37.7	10,1	89	86.0	23 0	39	134.3	36 0	89	182.6	48.9	39	230 9	61.9	89	279.1	74.8
40	38.6	10.4	90	86.9	23.2	40	135.2	36.2	90	183.5	49 2	40	231.8	62.1	90	280.1	75.0
41	39.6	10,6	91	87.9	23.6	141	136.2	36.5	191	184.5	49,4	241	232.8	62.4	291	281.1	75.3
42	40.6	10.9	92	88.9	23.8	42	137.2	36,7	92	185.5	49 7	42	233.7	62.6	92	282.0	75.6
43	41.5	11.1	93	89.8	24.1	43	138.1	37.0	93	186.4	49.9	43	234.7	62.9	93	283.0	75.8
44	42.5	11,4	94	90.8	24.3	44	139,1	37.3	94	187.4	50.2	44	235.7	63.1	94	284.0	76.1
45	43.5	11 6	95	91.8	24,6	45	140.1	37.5	95	188.4	50.5	45	236.6	63.4	95	284.9	76.3
46	44.4	11.9	96	92.7	24.8	146	141.0	37.8	196	189.3	50.7	246	237.6	63.7	296	285.9	76.6
47	45.4	12.2	97	93.7	25.1	47	142.0	38.0	97	190.3	51,0	47	238.6	63.9	97	286.9	76.9
48	46.4	12,4	98	94.7	25.4	48	143.0	38,3	98	191.2	51.2	48	239.5	64.2	98	287.8	77.1
49	47.3	12,7	99	95.6	25.6	49	143.9	38 6	99	192.2	51.5	49	240.5	64.4	99	288.8	77.4
50	48.3	12,9	100	96.6	25.9	150	144.9	38.8	200	193.2	51.8	250	241.5	64.7	300	289.8	77,6
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	01.0	00,3	51	49,0	14.1	101	97.1	27.8	151	145,1	41.6	201	193.2	55.4	251	241.2	69.2
2	01.9	00 6	52	50.0	14.3	02	98.0	28.1	52	146.1	41.9	02	194.1	55.7	52	242.2	69.5
3	02.9	00.8	53	50,9	14.6	03	99.0	28.4	53	147.1	42.2	03	195.1	55 9	53	243.2	69.7
4	03.8	01.1	54	51.9	14.9	04	100.0	28.7	54	148.0	42.4	04	196.1	56.2	54	244.1	70.0
5	04.8	01.4	55	52.9	15.2	05	100.9	28.9	55	149.0	42.7	05	197.0	56.5	55	245.1	70.3
6	05.8	01.7	56	53.8	15.4	106	101.9	29.1	156	149.9	43.0	206	198 0	56.8	256	246 0	70.6
7	06.7	01.9	57	54 8	15.7	07	102.8	29.5	57	150.9	43.3	07	199 0	57.0	57	247.0	70.8
8	07.7	02.2	58	55,7	16.0	08	103.8	29.8	58	151,9	43.5	08	199.9	57.3	58	248.0	71.1
9	08.7	02.5	59	56.7	16.3	09	104.8	30.0	59	152.8	43.8	09	200.9	57.6	59	248.9	71.4
10	09.6	02.8	60	57.7	16.5	10	105.7	30.3	6c	153.8	44,1	10	201.8	57.9	60	249.9	71.7
11	10,6	03.0	61	58.6	16.8	111	106.7	30.6	161	154.7	44.4	211	202.8	58.2	261	250.9	71.9
12	11.5	03.3	62	59.6	17.1	12	107.6	30.9	62	155,7	44.6	12	203.8	58.4	62	251.8	72.2
13	12.5	03.6	63	60.6	17.4	13	108.6	31.1	63	156 7	44.9	13	204.7	58.7	63	252.8	72.5
14	13.5	03.9	64	61.5	17.6	14	109.6	31 4	64	157,6	45.2	14	205.7	59.0	64	253 7	72.8
15	14.4	04.1	65	62.5	17.9	15	110.5	31.7	65	158.6	45.5	15	206 6	59.3	65	254.7	73.0
16	15.4	04.4	66	63.4	18,2	116	111.5	32.0	166	159.5	45.7	216	207.6	59.5	266	255.7	73.3
17	16.3	04.7	67	64.4	18.5	17	112.5	32.2	67	160.5	46.0	17	208.6	59.8	67	256.6	73,6
18	17.3	05 0	68	65.4	18.7	18	113.4	32.5	68	161.5	46.3	18	209.5	60.1	68	257.6	73.9
19	18.3	05.2	69	66.3	19.0	19	114.4	32.8	69	162.4	46.6	19	210.5	60,4	69	258.5	74.1
20	19.2	05 5	70	67.3	19.3	20	115.3	33,1	70	163.4	46.9	20	211.4	60.6	70	259.5	74 4
21	20.2	05.8	71	68,2	19 6	121	116.3	33.3	171	164.4	47.1	221	212.4	60.9	271	260.5	74.7
22	21.1	06.1	72	69 2	19.8	22	117.3	33.6	72	165.3	47.4	22	213.4	61.2	72	261.4	75.0
23	21.1	06.3	73	70.2	20.1	23	118.2	33.9	73	166.3	47.7	23	214.3	61.5	73	262.4	75.2
24	23.1	06 6	74	71.1	20.4	24	119.2	34,2	74	167.2	48,0	24	215 3	61,7	74	263.3	75.5
25	24.0	06 9	75	72,1	20.7	25	120.1	34.4	75	168.2	48.2	25	216.3	62.0	75	264.3	75.8
26	25.0	07.2	76	73.0	20.9	126	121.1	34.7	176	169.2	48.5	226	217.2	62.3	276	265.3	76.1
27	26,0	07.4	77	74.0	21.2	27	122.1	35.0	77	170.1	48.8	27	218.2	62.6	77	266.2	76.3
28	26.9	07.7	78	75.0	21.5	28	123.0	35.3	78	171.1	49.1	28	219.1	62.8	78	267.2	76.6
29	27.9	08.0	79	75.9	21.8	29	124.0	35.6	79	172.0	49,3	29	220.1	63.1	79	268.2	76.9
30	28.8	08.3	80	76.9	22.0	30	124.9	35.8	80	173.0	49 6	30	221.1	63.4	80	269.1	77.2
31	29.8	08,5	81	77.9	22.3	131	125.9	36.1	181	174.0	49.9	231	222.0	63.7	281	270.1	77.4
32	30.8	08,8	82	78.8	22.6	32	126.9	36.4	82	174.9	50.2	32	223.0	63 9	82	271.0	77,7
33	31.7	09,1	83	79.8	22.9	33	127.8	36.7	83	175.9	50.4	33	223.9	64.2	83	272.0	78.0
34	32.7	09.4	84	80.7	23 1	34	128.8	36,9	84	176.8	50.7	34	224.9	64.5	84	273.0	78,3
35	33.6	09.6	85	81.7	23.4	35	129.8	37.2	85	177.8	51,0	35	225.9	64.8	85	273.9	78.5
36	34,6	09 9	86	82.7	23.7	136	130.7	37.5	186	178.8	51.3	236	226.8	65.0	286	274 9	78,8
37	35.6	10,2	87	83,6	24.0	37	131.7	37.8	87	179.7	51.5	37	227.8	65.3	87	275.8	79.1
38	36.5	10.5	88	84.6	24.3	38	132,6	38.0	88	180.7	51.8	38	228.7	65.6	88	276,8	79.4
39	37.5	10.7	89	85.5	24,5	39	133.6	38,3	89	181.7	52,1	39	229.7	65.9	89	277.8	79.6
40	38.4	11.0	90	86.5	24.8	40	134.6	38.6	90	182.6	52.4	40	230.7	66.1	90	278.7	79.9
41	39.4	11,3	91	87.5	25.1	141	135.5	38.9	191	183.6	52.6	241	231.6	66.4	291	279.7	80.2
42	40.4	11.6	92	88.4	25.4	42	136.5	39.1	92	184.5	52.9	42	232.6	66.7	92	280.6	80.5
43	41.3	11.9	93	89.4	25.6	43	137.4	39.4	93	185.5	53.2	43	233,6	67.0	93	281.6	80.8
44	42.3	12.1	94	90.3	25.9	44	138.4	39.7	94	186.5	53.5	44	234.5	67.2	94	282.6	81.0
45	43.3	12.4	95	91.3	26,2	45	139,4	40.0	95	187.4	53.7	45	235.5	67.5	95	283.5	81.3
46	44.2	12,7	96	92.3	26.5	146	140.3	40.2	196	188.4	54 0	246	236.4	67.8	296	284.5	81.6
47	45.2	13,0	97	93.2	26.7	47	141.3	40.5	97	189.3	54.3	47	237.4	68.1	97	285.5	81.9
48	46.1	13.2	98	94.2	27.0	48	142.2	40.8	98	190.3	54.6	48	238.4	68.3	98	286.4	82.1
49	47.1	13.5	99	95.2	27.3	49	143.2	41.1	99	191.3	54.8	49	239.3	68.6	99	287.4	82.4
50	48.1	13,8	100	96.1	27.6	150	144.2	41.3	200	192.2	55.1	250	240.3	68.9	300	288.3	82.7
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00,3	51	48,8	14.9	101	96.6	29,5	151	144.4	44.1	201	192.2	58.8	251	240.0	73.3
2	01.9	00.6	52	49,7	15.2	02	97.5	29.8	52	145,3	44 4	02	193.2	59 0	52	241.0	73.6
3	02.9	00.9	53	50.7	15.5	03	98.5	30.1	53	146.3	44.7	03	194.1	59 3	53	241.9	73 9
4	03.8	01.2	54	51.6	15.8	04	99.4	30.4	54	147.3	45,0	04	195.1	59.6	54	242.9	74.1
5	04.8	01.5	55	52.6	16.1	05	100.4	30,7	55	148.2	45.3	05	196.0	59 9	55	243.8	74.4
6	05.7	01.8	56	53.5	16.4	106	101.4	31.0	156	149.2	45.6	206	197.0	60.2	256	244.8	74.7
7	06.7	02.0	57	54.5	16.7	07	102.3	31.3	57	150.1	45.9	07	197.9	60 5	57	245.8	75.0
8	07.6	02.3	58	55,5	17.0	08	103.3	31 6	58	151,1	46.2	08	198 9	60.8	58	246 7	75.3
9	08.6	02.6	59	56.4	17.2	09	104.2	31.9	59	152.0	46.5	09	199.9	61.1	58	247.7	75.6
10	09.6	02.9	60	57.4	17.5	10	105.2	32.2	60	153 0	46.8	10	200.8	61 4	60	248.6	75 9
11	10,5	03.2	61	58.3	17,8	111	106.1	32.4	161	154.0	47,1	211	201.8	61.7	261	249.6	76.2
12	11.5	03.5	62	59.3	18,1	12	107.1	32.7	62	154.9	47.4	12	202.7	62.0	62	250 5	76,5
13	12.4	03.8	63	60.2	18.4	13	108.1	33,0	63	155.9	47.6	13	203.7	62.3	63	251.5	76.8
14	13.4	04.1	64	61.2	18.7	14	109 0	33.3	64	156 8	47.9	14	204.6	62.6	64	252.4	77.1
15	14.3	04.4	65	62.2	19.0	15	110.0	33 6	65	157,8	48,2	15	205.6	62.8	65	253 4	77.4
16	15.3	04.7	66	63.1	19.3	116	110.9	33 9	166	158.7	48.5	216	206 5	63 1	266	254.4	77.7
17	16.3	05.0	67	64.1	19.6	17	111.9	34,2	67	159.7	48.8	17	207.5	63.4	67	255.3	77,9
18	17.2	05.3	68	65.0	19 9	18	112.8	34.5	68	160 6	49.1	18	208.5	63 7	68	256.3	78.2
19	18.2	05.6	69	66.0	20.2	19	113.8	34 8	69	161.6	49,4	19	209.4	64.0	69	257.2	78,5
20	19.1	05.8	70	66.9	20 5	20	114.7	35.1	70	162.6	49 7	20	210 4	64.3	70	258 2	78.8
21	20.1	06.1	71	67 9	20 8	121	115.7	35.4	171	163.5	50 0	221	211.3	64 6	271	259.1	79.1
22	21.0	06 4	72	68,8	21.0	22	116 7	35 7	72	164.5	50.3	22	212.3	64 9	72	260.1	79.4
23	22.0	06.7	73	69 8	21.3	23	117.6	36 0	73	165.4	50 6	23	213.2	05.2	73	261.1	79.7
24	22.9	07.0	74	70.8	21.6	24	118.6	36.2	74	166.4	50.9	24	214.2	65.5	74	262 0	80 0
25	23.9	07 3	75	71.7	21.9	25	119 5	36.5	75	167.3	51,2	25	215 2	65.8	75	263.0	80.3
26	24 9	07.6	76	72,7	22.2	126	120.5	36.8	176	168.3	51.4	226	216.1	66 1	276	263.9	80 6
27	25 8	07.9	77	73.6	22.5	27	121.4	37.1	77	169.3	51.7	27	217.1	66 4	77	264.9	80.9
28	26,8	08 2	78	74 6	22.8	28	122.4	37.4	78	170.2	52,0	28	218.0	66 6	78	265.8	81.2
29	27.7	08.5	79	75.5	23 1	29	123 4	37.7	79	171.2	52 3	29	219.0	66.9	79	266.8	81 5
30	28.7	08,8	80	76.5	23.4	30	124.3	38.0	80	172.1	52.6	30	219.9	67 2	80	267 7	81 7
31	29.6	09,1	81	77.5	23.7	131	125.3	38.3	181	173.1	52.9	231	220.9	67 5	281	268.7	82.0
32	30.6	09.4	82	78.4	24.0	32	126.2	38,6	82	174.0	53 2	32	221.8	67.8	82	269.7	82.3
33	31.6	09,6	83	79.4	24.3	33	127.2	38 9	83	175.0	53.5	33	222.8	68 1	83	270.6	82.6
34	32.5	09 9	84	80.3	24,6	34	128.1	39.2	84	175.9	53.8	34	223.8	68 4	84	271 6	82.9
35	33.5	10,2	85	81.3	24.8	35	129.1	39.5	85	176.9	54 1	35	224.7	68 7	85	272.5	83.2
36	34,4	10.5	86	82.2	25.1	136	130.0	39.8	186	177.9	54.4	236	225 7	69.0	286	273 5	83,5
37	35.4	10 8	87	83,2	25.4	37	131 0	40.0	87	178.8	54.7	37	226.6	69 3	87	274.4	83 8
38	36.3	11.1	88	84.1	25.7	38	132.0	40.3	88	179.8	55.0	38	227.6	69.6	88	275.4	84.1
39	37.3	11 4	89	85.1	26,0	39	132,9	40 6	89	180.7	55.2	39	123 5	69.9	89	276,4	84 4
40	38.2	11.7	90	86.1	26.3	40	133.9	40.9	90	181.7	55.5	40	229.5	70,2	90	277.3	84.7
41	39.2	12.0	91	87.0	26.6	141	134 8	41,2	191	182.6	55.8	241	230 5	70 4	291	278.3	85.0
42	40.2	12.3	92	88.0	26.9	42	135.8	41.5	92	183.6	56.1	42	231.4	70.7	92	279.2	85.3
43	41.1	12,6	93	88.9	27.2	43	136.7	41.8	93	184.6	56 4	43	232.4	71.0	93	280 2	85.5
44	42.1	12,9	94	89.9	27.5	44	137.7	42.1	94	185.5	56.7	44	233.3	71.3	94	281.1	85.8
45	43.0	13,2	95	90.8	27.8	45	138 7	42.4	95	186.5	57.0	45	234.3	71,6	95	282.1	86.1
46	44.0	13.4	96	91.8	28.1	146	139,6	42.7	196	187 4	57.3	246	235.2	71.9	296	283.0	86.4
47	44 9	13.7	97	92.8	28.4	47	140.6	43.0	97	188.4	57.6	47	236.2	72.1	97	284.0	86.7
48	45.9	14.0	98	93.7	28.6	48	141.5	43.3	98	189.3	57.9	48	237.1	72.4	98	285.0	87.0
49	46.9	14,3	99	94.7	28.9	49	142.5	43.6	99	190.3	58.2	49	238.1	72.7	99	285.9	87.3
50	47.8	14,6	100	95.6	29.2	150	143 4	43.8	200	191 2	58.5	250	239.1	73 0	300	286.9	87 6
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

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D.ſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat.	Dep	Diſt	Lat	Dep
1	01.0	00.3	51	48.5	15.8	101	96.1	31.2	151	143.6	46.7	201	191.2	62.1	251	238.7	77.6
2	01.9	00.6	52	49.5	16.1	02	97.0	31.5	52	144.6	47.0	02	192.1	62.4	52	239.7	77.9
3	02.9	00.9	53	50.4	16.4	03	98.0	31.8	53	145.5	47.3	03	193.1	62.7	53	240.6	78.2
4	03.8	01.2	54	51.4	16.7	04	98.9	32.1	54	146.5	47.6	04	194.0	63.0	54	241.6	78.5
5	04.8	01.5	55	52.3	17.0	05	99.9	32.4	55	147.4	47.9	05	195.0	63.3	55	242.5	78.8
6	05.7	01.9	56	53.3	17.3	106	100.8	32.8	156	148.4	48.2	206	195.9	63.7	256	243.5	79.1
7	06.7	02.2	57	54.2	17.6	07	101.8	33.1	57	149.3	48.5	07	196.9	64.0	57	244.4	79.4
8	07.6	02.5	58	55.2	17.9	08	102.7	33.4	58	150.3	48.9	08	197.8	64.3	58	245.4	79.7
9	08.6	02.8	59	56.1	18.2	09	103.7	33.7	59	151.2	49.1	09	198.8	64.6	59	246.3	80.0
10	09.5	03.1	60	57.1	18.5	10	104.6	34.0	60	152.2	49.4	10	199.7	64.9	60	247.3	80.3
11	10.5	03.4	61	58.0	18.8	111	105.6	34.3	161	153.1	49.7	211	200.7	65.2	261	248.2	80.6
12	11.4	03.7	62	59.0	19.2	12	106.5	34.6	62	154.1	50.1	12	201.6	65.5	62	249.2	81.0
13	12.4	04.0	63	59.9	19.5	13	107.5	34.9	63	155.0	50.4	13	202.6	65.8	63	250.1	81.3
14	13.3	04.3	64	60.9	19.8	14	108.4	35.2	64	156.0	50.7	14	203.5	66.1	64	251.1	81.6
15	14.3	04.6	65	61.8	20.1	15	109.4	35.5	65	156.9	51.0	15	204.5	66.4	65	252.0	81.9
16	15.2	04.9	66	62.8	20.4	116	110.3	35.8	166	157.9	51.3	216	205.4	66.7	266	253.0	82.2
17	16.2	05.3	67	63.7	20.7	17	111.3	36.2	67	158.8	51.6	17	206.4	67.1	67	253.9	82.5
18	17.1	05.6	68	64.7	21.0	18	112.2	36.5	68	159.8	51.9	18	207.3	67.4	68	254.9	82.8
19	18.1	05.9	69	65.6	21.3	19	113.2	36.8	69	160.7	52.2	19	208.3	67.7	69	255.8	83.1
20	19.0	06.2	70	66.6	21.6	20	114.1	37.1	70	161.7	52.5	20	209.2	68.0	70	256.8	83.4
21	20.0	06.5	71	67.5	21.9	121	115.1	37.4	171	162.6	52.8	221	210.2	68.3	271	257.7	83.7
22	20.9	06.8	72	68.5	22.2	22	116.0	37.7	72	163.6	53.1	22	211.1	68.6	72	258.7	84.0
23	21.9	07.1	73	69.4	22.6	23	117.0	38.0	73	164.5	53.5	23	212.1	68.9	73	259.6	84.4
24	21.8	07.4	74	70.4	22.9	24	117.9	38.3	74	165.5	53.8	24	213.0	69.2	74	260.6	84.7
25	23.8	07.7	75	71.3	23.2	25	118.9	38.6	75	166.4	54.1	25	214.0	69.5	75	261.5	85.0
26	24.7	08.0	76	72.3	23.5	126	119.8	38.9	176	167.4	54.4	226	214.9	69.8	276	262.5	85.3
27	25.7	08.3	77	73.2	23.8	27	120.8	39.2	77	168.3	54.7	27	215.9	70.1	77	263.4	85.6
28	26.6	08.7	78	74.2	24.1	28	121.7	39.6	78	169.3	55.0	28	216.8	70.5	78	264.4	85.9
29	27.6	09.0	79	75.1	24.4	29	122.7	39.9	79	170.2	55.3	29	217.8	70.8	79	265.3	86.2
30	28.5	09.3	80	76.1	24.7	30	123.6	40.2	80	171.2	55.6	30	218.7	71.0	80	266.3	86.5
31	29.5	09.6	81	77.0	25.0	131	124.6	40.5	181	172.1	55.9	231	219.7	71.4	281	267.2	86.8
32	30.4	09.9	82	78.0	25.3	32	125.5	40.8	82	173.1	56.2	32	220.6	71.7	82	268.2	87.1
33	31.4	10.2	83	78.9	25.6	33	126.5	41.1	83	174.0	56.5	33	221.6	72.0	83	269.1	87.4
34	32.3	10.5	84	79.9	26.0	34	127.4	41.4	84	175.0	56.9	34	222.5	72.3	84	270.1	87.8
35	33.3	10.8	85	80.8	26.3	35	128.4	41.7	85	175.9	57.2	35	223.5	72.6	85	271.0	88.1
36	34.2	11.1	86	81.8	26.6	136	129.3	42.0	186	176.9	57.5	236	214.4	72.9	286	272.0	88.4
37	35.2	11.4	87	82.7	26.9	37	130.3	42.3	87	177.8	57.8	37	225.4	73.2	87	272.9	88.7
38	36.1	11.7	88	83.7	27.2	38	131.2	42.6	88	178.8	58.1	38	226.3	73.5	88	273.9	89.0
39	37.1	12.1	89	84.6	27.5	39	132.2	43.0	89	179.7	58.4	39	227.3	73.9	89	274.8	89.3
40	38.0	12.4	90	85.6	27.8	40	133.1	43.3	90	180.7	58.7	40	128.2	74.2	90	275.8	89.6
41	39.0	12.7	91	86.5	28.1	141	134.1	43.6	191	181.6	59.0	241	229.2	74.5	291	276.7	89.9
42	39.9	13.0	92	87.5	28.4	42	135.0	43.9	92	182.6	59.3	42	230.1	74.8	92	277.7	90.2
43	40.9	13.3	93	88.4	28.7	43	136.0	44.2	93	183.5	59.6	43	231.1	75.1	93	278.6	90.5
44	41.8	13.6	94	89.4	29.0	44	136.9	44.5	94	184.5	59.9	44	232.0	75.4	94	279.6	90.8
45	42.8	13.9	95	90.3	29.4	45	137.9	44.8	95	185.4	60.3	45	233.0	75.7	95	280.5	91.2
46	43.7	14.2	96	91.3	29.7	146	138.8	45.1	196	186.4	60.6	246	233.9	76.0	296	281.5	91.5
47	44.7	14.5	97	92.2	30.0	47	139.8	45.4	97	187.3	60.9	47	234.9	76.3	97	282.4	91.8
48	45.6	14.8	98	93.2	30.3	48	140.7	45.7	98	188.3	61.2	48	235.8	76.6	98	283.4	92.1
49	46.6	15.1	99	94.1	30.6	49	141.7	46.0	99	189.2	61.5	49	236.8	76.9	99	284.3	92.4
50	47.6	15.5	100	95.1	30.9	150	142.7	46.4	200	190.2	61.8	250	237.8	77.3	300	285.3	92.7
Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat

for 72 Deg.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00 9	00.3	51	48.2	16.6	101	95.5	32.9	151	142.8	49.2	201	190.0	65.4	251	237.3	81.7
2	01.9	00.7	52	49.2	16.9	02	96.4	33.2	52	143.7	49.5	02	191.0	65.8	52	238.3	82.1
3	02.8	01.0	53	50.1	17.3	03	97.4	33.5	53	144.7	49.8	03	191.9	66.1	53	239.2	82.4
4	03 8	01.3	54	51.1	17.6	04	98.3	33.9	54	145 6	50.1	04	192.9	66.4	54	240.1	82.7
5	04.7	01.6	55	52.0	17.9	05	99.3	34.2	55	146.5	50.5	05	193.8	66.7	55	241.1	83.0
6	05.7	02.0	56	52.9	18.2	106	100.2	34 5	156	147.5	50.8	206	194.8	67.1	256	242.0	83.4
7	06.6	02.3	57	53.9	18.6	07	101.2	34.8	57	148.4	51.1	07	195.7	67.4	57	243.0	83.7
8	07.6	02.6	58	54.8	18.9	08	102.1	35.2	58	149.4	51.4	08	196.7	67.7	58	243.9	84.0
9	08.5	02.9	59	55.8	19.2	09	103.1	35.5	59	150.3	51.8	09	197.6	68.1	59	244.9	84.3
10	09.5	03.3	60	56.7	19.5	10	104.0	35.8	60	151.3	52.1	10	198.5	68.4	60	245.8	84.7
11	10.4	03.6	61	57.7	19.9	111	104.9	36.1	161	152.2	52 4	211	199.5	68.7	261	246.8	85.0
12	11.3	03.9	62	58.6	20.2	12	105.9	36.5	62	153.2	52.7	12	200.4	69.0	62	247.7	85.3
13	12.3	04.2	63	59.6	20.5	13	106.8	36.8	63	154.1	53.1	13	201.4	69.4	63	248.7	85.6
14	13.2	04.6	64	60.5	20.8	14	107.8	37.1	64	155.1	53.4	14	202.3	69.7	64	249.6	86.0
15	14.2	04.9	65	61.5	21.2	15	108.7	37.4	65	156.0	53.7	15	203.3	70.0	65	250.5	86.3
16	15.1	05.2	66	62.4	21.5	116	109.7	37.8	166	156.9	54.0	216	204.2	70.3	266	251.5	86.6
17	16.1	05.5	67	63.3	21.8	17	110.6	38.1	67	157.9	54.4	17	205.2	70.7	67	252.4	86.9
18	17.0	05.9	68	64.3	22.1	18	111.6	38.4	68	158.8	54.7	18	206.1	71.0	68	253.4	87.3
19	18.0	06.2	69	65.2	22.5	19	112.5	38.7	69	159.8	55.0	19	207.1	71.3	69	254.3	87.6
20	18.9	06.5	70	66.2	22.8	20	113.5	39.1	70	160.7	55.4	20	208.0	71.6	70	255.3	87.9
21	19.9	06.8	71	67.1	23.1	121	114.4	39.4	171	161.7	55.7	221	208.9	72.0	271	256.2	88.2
22	20.8	07.2	72	68.1	23.4	22	115.3	39.7	72	162.6	56.0	22	209.9	72.3	72	257.2	88.6
23	21.7	07.5	73	69.0	23.8	23	116.3	40.0	73	163.6	56.3	23	210.8	72.6	73	258.1	88.9
24	22.7	07.8	74	70.0	24.1	24	117.2	40.4	74	164.5	56.7	24	211.8	72.9	74	259.1	89.2
25	23 6	08.1	75	70.9	24 4	25	118.2	40.7	75	165.5	57.0	25	212.7	73.3	75	260.0	89.5
26	24.6	08 5	76	71.9	24.7	126	119.1	41.0	176	166.4	57.3	226	213.7	73.6	276	260.9	89.9
27	25.5	08.8	77	72.8	25.1	27	120.1	41.4	77	167.3	57.6	27	214.6	73.9	77	261.9	90.2
28	26.5	09.1	78	73.7	25.4	28	121.0	41.7	78	168.3	58.0	28	215.6	74.2	78	262.8	90.5
29	27.4	09.4	79	74.7	25.7	29	122.0	42.0	79	169.2	58.3	29	216.5	74.6	79	263.8	90.8
30	28.4	09.8	80	75.6	26.0	30	122.9	42.3	80	170.2	58.6	30	217.5	74.9	80	264.7	91.2
31	29.3	10.1	81	76.6	26.4	131	123.9	42.7	181	171.1	58.9	231	218.4	75.2	281	265.7	91.5
32	30.3	10.4	82	77.5	26.7	32	124.8	43.0	82	172.1	59.3	32	219.3	75.5	82	266.6	91.8
33	31.2	10.7	83	78.5	27.0	33	125.7	43.3	83	173.0	59.6	33	220.3	75.9	83	267.6	92.1
34	32.1	11.1	84	79.4	27.4	34	126.7	43.6	84	174.0	59.9	34	221.2	76.2	84	268.5	92.5
35	33.1	11.4	85	80.4	27.7	35	127.6	44.0	85	174.9	60.2	35	222.2	76.5	85	269.5	92.8
36	34.0	11.7	86	81.3	28 0	136	128.6	44.3	186	175.9	60.6	236	223.1	76.8	286	270.4	93.1
37	35.0	12.0	87	82.3	28.3	37	129.5	44.6	87	176.8	60.9	37	224.1	77.2	87	271.3	93.4
38	35.9	12.4	88	83.2	28.7	38	130.5	44.9	88	177.7	61.2	38	225.0	77.5	88	272.3	93.8
39	36.9	12.7	89	84.1	29.0	39	131.4	45.3	89	178.7	61.5	39	226.0	77.8	89	273.2	94.1
40	37.8	13.0	90	85.1	29.3	40	132.4	45.6	90	179.6	61.9	40	226.9	78.1	90	274.2	94.4
41	38.8	13.3	91	86.0	29.6	141	133.3	45.9	191	180.6	62.2	241	227.9	78.5	291	275.1	94.7
42	39.7	13.7	92	87.0	30.0	42	134.3	46.2	92	181.5	62.5	42	228.8	78.8	92	276.1	95.1
43	40.7	14.0	93	87.9	30.3	43	135.2	46.6	93	182.5	62.8	43	229.7	79.1	93	277.0	95.4
44	41.6	14.3	94	88.9	30.6	44	136.1	46.9	94	183.4	63.2	44	230.7	79.4	94	278.0	95.7
45	42.5	14.7	95	89.8	30.9	45	147.1	47.2	95	184.4	63.5	45	231.6	79.8	95	278.9	96.1
46	43.5	15.0	96	90.8	31.3	146	138.0	47.5	196	185.3	63.8	246	232.6	80.1	296	279.9	96.4
47	44.4	15.3	97	91.7	31.6	47	139.0	47.9	97	186.3	64.1	47	233.5	80.4	97	280.8	96.7
48	45.4	15.6	98	92.7	31.9	48	139.9	48.2	98	187.2	64.5	48	234.5	80.7	98	281.7	97.0
49	46.3	16.0	99	93.6	32.2	49	140.9	48 5	99	188.1	64.8	49	235.4	81.1	99	282.7	97.4
50	47.3	16.3	100	94.5	32.6	150	141.8	48.8	200	189.1	65.1	250	236.4	81.4	300	283.6	97.7
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 71 Deg.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.3	51	47.9	17.4	101	94.9	34.5	151	141.9	51.6	201	188.9	68.7	251	235.9	85.8
2	01.9	00.7	52	48.9	17.8	02	95.8	34.9	52	142.8	52.0	02	189.8	69.1	52	236.8	86.2
3	02.8	01.0	53	49.8	18.1	03	96.8	35.2	53	143.8	52.3	03	190.8	69.4	53	237.7	86.5
4	03.8	01.4	54	50.7	18.5	04	97.7	35.6	54	144.7	52.7	04	191.7	69.8	54	238.7	86.9
5	04.7	01.7	55	51.7	18.8	05	98.7	35.9	55	145.7	53.0	05	192.6	70.1	55	239.6	87.2
6	05.6	02.1	56	52.6	19.2	106	99.6	36.3	156	146.6	53.4	206	193.6	70.5	256	240.6	87.6
7	06.6	02.4	57	53.6	19.5	07	100.5	36.6	57	147.5	53.7	07	194.5	70.8	57	241.5	87.9
8	07.5	02.7	58	54.5	19.8	08	101.5	36.9	58	148.5	54.0	08	195.5	71.1	58	242.4	88.2
9	08.5	03.1	59	55.4	20.2	09	102.4	37.3	59	149.4	54.4	09	196.4	71.5	59	243.4	88.6
10	09.4	03.4	60	56.4	20.5	10	103.4	37.6	60	150.4	54.7	10	197.3	71.8	60	244.3	88.9
11	10.3	03.8	61	57.3	20.9	111	104.3	38.0	161	151.3	55.1	211	198.3	72.2	261	245.3	89.3
12	11.3	04.1	62	58.3	21.2	12	105.2	38.3	62	152.2	55.4	12	199.2	72.5	62	246.2	89.6
13	12.2	04.4	63	59.2	21.5	13	106.2	38.6	63	153.2	55.7	13	200.2	72.8	63	247.1	89.9
14	13.2	04.8	64	60.1	21.9	14	107.1	39.0	64	154.1	56.1	14	201.1	73.2	64	248.1	90.3
15	14.1	05.1	65	61.1	22.2	15	108.1	39.3	65	155.1	56.4	15	202.0	73.5	65	249.0	90.6
16	15.0	05.5	66	62.0	22.6	116	109.0	39.7	166	156.0	56.8	216	203.0	73.9	266	250.0	91.0
17	16.0	05.8	67	63.0	22.9	17	109.9	40.0	67	156.9	57.1	17	203.9	74.2	67	250.9	91.3
18	16.9	06.2	68	63.9	23.3	18	110.9	40.4	68	157.9	57.5	18	204.9	74.6	68	251.8	91.7
19	17.9	06.5	69	64.8	23.6	19	111.8	40.7	69	158.8	57.8	19	205.8	74.9	69	252.8	92.0
20	18.8	06.8	70	65.8	23.9	20	112.8	41.0	70	159.7	58.1	20	206.7	75.2	70	253.7	92.3
21	19.7	07.2	71	66.7	24.3	121	113.7	41.4	171	160.7	58.5	221	207.7	75.6	271	254.7	92.7
22	20.7	07.5	72	67.7	24.6	22	114.6	41.7	72	161.6	58.8	22	208.6	75.9	72	255.6	93.0
23	21.6	07.9	73	68.6	25.0	23	115.6	42.1	73	162.6	59.2	23	209.6	76.3	73	256.5	93.4
24	22.6	08.2	74	69.5	25.3	24	116.5	42.4	74	163.5	59.5	24	210.5	76.6	74	257.5	93.2
25	23.5	08.6	75	70.5	25.7	25	117.5	42.8	75	164.4	59.9	25	211.4	77.0	75	258.4	94.1
26	24.4	08.9	76	71.4	26.0	126	118.4	43.1	176	165.4	60.2	226	212.4	77.3	276	259.4	94.4
27	25.4	09.2	77	72.4	26.3	27	119.3	43.4	77	166.3	60.5	27	213.3	77.6	77	260.3	94.7
28	26.3	09.6	78	73.3	26.7	28	120.3	43.8	78	167.3	60.9	28	214.3	78.0	78	261.2	95.1
29	27.3	09.9	79	74.2	27.0	29	121.2	44.1	79	168.2	61.2	29	215.2	78.3	79	262.2	95.4
30	28.2	10.3	80	75.2	27.4	30	122.2	44.5	80	169.1	61.6	30	216.1	78.7	80	263.1	95.8
31	29.1	10.6	81	76.1	27.7	131	123.1	44.8	181	170.1	61.9	231	217.1	79.0	281	264.1	96.1
32	30.1	10.9	82	77.1	28.0	32	124.0	45.1	82	171.0	62.2	32	218.0	79.3	82	265.0	96.4
33	31.0	11.3	83	78.0	28.4	33	125.0	45.5	83	172.0	62.6	33	219.0	79.7	83	265.9	96.8
34	31.9	11.6	84	78.9	28.7	34	125.9	45.8	84	172.9	62.9	34	219.9	80.0	84	266.9	97.1
35	32.9	12.0	85	79.9	29.1	35	126.9	46.2	85	173.8	63.3	35	220.8	80.4	85	267.8	97.5
36	33.8	12.3	86	80.8	29.4	136	127.8	46.5	186	174.8	63.6	236	221.8	80.7	286	268.8	97.8
37	34.8	12.7	87	81.8	29.8	37	128.7	46.9	87	175.7	64.0	37	222.7	81.1	87	269.7	98.2
38	35.7	13.0	88	82.7	30.1	38	129.7	47.2	88	176.7	64.3	38	223.6	81.4	88	270.6	98.5
39	36.6	13.3	89	83.6	30.4	39	130.6	47.5	89	177.6	64.6	39	224.6	81.7	89	271.6	98.8
40	37.6	13.7	90	84.6	30.8	40	131.6	47.9	90	178.5	65.0	40	225.5	82.1	90	272.5	99.2
41	38.5	14.0	91	85.5	31.1	141	132.5	48.2	191	179.5	65.3	241	226.5	82.4	291	273.5	99.5
42	39.5	14.4	92	86.5	31.5	42	133.4	48.6	92	180.4	65.7	42	227.4	82.8	92	274.4	99.9
43	40.4	14.7	93	87.4	31.8	43	134.4	48.9	93	181.4	66.0	43	228.3	83.1	93	275.3	100.2
44	41.3	15.0	94	88.3	32.1	44	135.3	49.2	94	182.3	66.3	44	229.3	83.4	94	276.5	100.5
45	42.3	15.4	95	89.3	32.5	45	136.3	49.6	95	183.2	66.7	45	230.2	83.8	95	277.2	100.9
46	43.2	15.7	96	90.2	32.8	146	137.2	49.9	196	184.2	67.0	246	231.2	84.1	296	278.2	101.1
47	44.2	16.1	97	91.2	33.2	47	138.1	50.3	97	185.1	67.4	47	232.1	84.5	97	279.1	101.6
48	45.1	16.4	98	92.1	33.5	48	139.1	50.6	98	186.1	67.7	48	233.0	84.8	98	280.0	101.9
49	46.0	16.8	99	93.0	33.9	49	140.0	51.0	99	187.0	68.1	49	234.0	85.2	99	281.0	102.3
50	47.0	17.1	100	94.0	34.2	150	140.0	51.3	200	187.9	68.4	250	234.9	85.5	300	281.9	102.6
	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.4	51	47.6	18,3	101	94.3	36.2	151	141.0	54.1	201	187.6	72.0	251	234.3	90.0
2	01.9	00.7	52	48.5	18.6	02	95.3	36.6	52	141.9	54.5	02	188.6	72.4	52	235.3	90.3
3	02.8	01.1	53	49.5	19.0	03	96.2	36.9	53	142.9	54.8	03	189.5	72.8	53	236.2	90.7
4	03.7	01.4	54	50.4	19.4	04	97.1	37.3	54	143.8	55.2	04	190.4	73.1	54	237.1	91.0
5	04.7	01.8	55	51.3	19.7	05	98.1	37.6	55	144.7	55.6	05	191.4	73.5	55	238.1	91.4
6	05.6	02.2	56	52.3	20.1	106	99.0	38.0	156	145.7	55.9	206	192.3	73.8	256	239.0	91.8
7	06.5	02.5	57	53.2	20.4	07	99.9	38.3	57	146.6	56.3	07	193.2	74.2	57	239.9	92.1
8	07.5	02.9	58	54.1	20.8	08	100.9	38.7	58	147.5	56.6	08	194.2	74.5	58	240.9	92,5
9	08.4	03.2	59	55,1	21.1	09	101.8	39.1	59	148.5	57.0	09	195.1	74.9	59	241.8	92.8
10	09.3	03.6	60	56.0	21.5	10	102.7	39.4	60	149.4	57.3	10	196.0	75.3	60	242.7	93.2
11	10,3	03.9	61	56.9	21.9	111	103.7	39.8	161	150.3	57.7	211	197.0	75.6	261	243.7	93.5
12	11.2	04.3	62	57.9	22.2	12	104.6	40.1	62	151.3	58.1	12	197.9	76.0	62	244.6	93.9
13	12.1	04.6	63	58.8	22.6	13	105.5	40.5	63	152.2	58.4	13	198.8	76.3	63	245.5	94.3
14	13,1	05.0	64	59.7	22.9	14	106.5	40.9	64	153.1	58.8	14	199.8	76.7	64	246.5	94,6
15	14.0	05.4	65	60.7	23.3	15	107,4	41,2	65	154.1	59.1	15	200.7	77.1	65	247.4	95.0
16	14.9	05,7	66	61.6	23.7	116	108.3	41.6	166	155.0	59.5	216	201.6	77.4	266	248.3	95.3
17	15.9	06.1	67	62.5	24.0	17	109.3	41.9	67	155.9	59.9	17	202.6	77.8	67	249.3	95,7
18	16.8	06.5	68	63.5	24.4	18	110.2	42.3	68	156.9	60,2	18	203.5	78.1	68	250.2	96.1
19	17.7	06.8	69	64.4	24.7	19	111.1	42,6	69	157.8	60.6	19	204.4	78.5	69	251.1	96.4
20	18.7	07.2	70	65.3	25.1	20	112.1	43.0	70	158.7	60.9	20	205.4	78.8	70	252.1	96.8
21	19.6	07.5	71	66.3	25.4	121	113.0	43.4	171	159.7	61.3	221	206.3	79.2	271	253.0	97.1
22	20.5	07.9	72	67.2	25.8	22	113.9	43.7	72	160.6	61.6	22	207.2	79.6	72	253.9	97.5
23	21.5	08.2	73	68.1	26.2	23	114.9	44.1	73	161.5	62.0	23	208.2	79,9	73	254.9	97.8
24	22.4	08.6	74	69.1	26.5	24	115.8	44.4	74	162.5	62.4	24	209.1	80.3	74	255.8	98.2
25	23.3	09.0	75	70.0	26.9	25	116.7	44.8	75	163.4	62.7	25	210.0	80.6	75	256.7	98.6
26	24.3	09.3	76	70.9	27.2	126	117.7	45.2	176	164.3	63.1	226	211.0	81.0	276	257.7	98.9
27	25.2	09.7	77	71.9	27.6	27	118.6	45.5	77	165.3	63.4	27	211.9	81.4	77	258.6	99.3
28	26.1	10.0	78	72.8	28.0	28	119.5	45.9	78	166.2	63.8	28	212.8	81.7	78	259.5	99.6
29	27.1	10.4	79	73.7	28.3	29	120.5	46.2	79	167.1	64.2	29	213.8	82.1	79	260.5	100,0
30	28.0	10.8	80	74.7	28.7	30	121.4	46.6	80	168.1	64.5	30	214.7	82.4	80	261.4	100,4
31	28.9	11,1	81	75.6	29.0	131	122.3	47.0	181	169.0	64.9	231	215.6	82.8	281	262.3	100.7
32	29.9	11.5	82	76.5	29.4	32	123.3	47.3	82	169.9	65.2	32	216.6	83.1	82	263.3	101.1
33	30.8	11.8	83	77.5	29.7	33	124.2	47.7	83	170.9	65.6	33	217.5	83.5	83	264.2	101,4
34	31.7	12,2	84	78.4	30.1	34	125.1	48.0	84	171.8	65.9	34	218.4	83.9	84	265.1	101.8
35	32.7	12.5	85	79.3	30.5	35	126,1	48.4	85	172.7	66.3	35	219.4	84.2	85	266.1	102,1
36	33.6	12.9	86	80.3	30.8	136	127.0	48.7	186	173.7	66.7	236	220.3	84.6	286	267.0	102.5
37	34.5	13.3	87	81.2	31.2	37	127.9	49.1	87	174.6	67.0	37	221.2	84.9	87	267.9	102.9
38	35,5	13.6	88	82.1	31.5	38	128.9	49.5	88	175.5	67.4	38	222.2	85,3	88	268.9	103.2
39	36.4	14.0	89	83.1	31.9	39	129.8	49,8	89	176.5	67.7	39	223.1	85.7	89	269.8	103.6
40	37.3	14.3	90	84.0	32.3	40	130.7	50.2	90	177.4	68.1	40	224.1	86.0	90	270.7	103.9
41	38.3	14.7	91	84.9	32.6	141	131.7	50.5	191	178.3	68.5	241	225.0	86.4	291	271.7	104.3
42	39.2	15.1	92	85.9	33.0	42	132.6	50.9	92	179.3	68.8	42	225.9	86,7	92	272.6	104.7
43	40.1	15.4	93	86.8	33.3	43	133.5	51.3	93	180.2	69.2	43	226.9	87.1	93	273.5	105.0
44	41.1	15.8	94	87.7	33.7	44	134.5	51.6	94	181.1	69.5	44	227.8	87.4	94	274.5	105.4
45	42.0	16.1	95	88.7	34.0	45	135.4	52.0	95	182.1	69.9	45	228.7	87.8	95	275.4	105.7
46	42.9	16.5	96	89.6	34.4	146	136.3	52.3	196	183.0	70.2	246	229.7	88.2	296	276.3	106.1
47	43.9	16.8	97	90.5	34.8	47	147.3	52.7	97	183.9	70.6	47	230.6	88.5	97	277.3	106.4
48	44.8	17.2	98	91.5	35.1	48	138.2	53.0	98	184.9	71.0	48	231.5	88.9	98	278.2	106.8
49	45.7	17.6	99	92.4	35.5	49	139.1	53.4	99	185.8	71.3	49	232.5	89,2	99	279.1	107.2
50	46.7	17.9	100	93.4	35.8	150	140.1	53.8	200	186.7	71.7	250	233.4	89.6	300	280.1	107.5
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 69 Deg.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00 9	00 4	51	47.3	19,1	101	93.6	37.8	151	140.0	56.6	201	186.4	75.3	251	232.7	94.0
2	01.9	00 7	52	48.2	19.5	02	94.6	38,2	52	140.9	56.9	02	187.7	75,7	52	233.7	94.4
3	02.8	01.1	53	49.1	19.9	03	95.5	38.6	53	141.9	57.3	03	188.2	76.0	53	234.6	94.8
4	03.7	01.5	54	50.1	20.2	04	96.4	39.0	54	142.8	57.7	04	189.1	76.4	54	235.5	95.2
5	04.6	01.9	55	51.0	20.6	05	97.4	39.3	55	143.7	58.1	05	190.1	76 8	55	236,4	95.5
6	05.6	02.2	56	51.9	21,0	106	98.3	39.7	156	144.6	58.4	206	191.0	77.3	256	237.4	95 9
7	06.5	02.6	57	52.9	21.4	07	99.2	40.1	57	145.6	58.8	07	191.9	77.5	57	238.3	96.3
8	07.4	03.0	58	53.8	21.7	08	100.1	40.5	58	146 5	59.2	08	192.9	77.9	58	239.2	96.6
9	08.3	03 4	59	54.7	22.1	09	101.1	40.8	59	147 4	59.6	09	193.8	78.3	59	240.1	97.0
10	09.3	03.7	60	55.6	22.5	10	102.0	41.2	60	148.4	59.9	10	194.7	78.7	60	241.1	97.4
11	10.2	04.1	61	56.6	22.9	111	102.9	41.6	161	149.3	60.3	211	195.6	79 0	261	242.0	97.8
12	11.1	04.5	62	57.5	23.2	12	103.8	42.0	62	150.2	60.7	12	196,6	79 4	62	242,9	98,1
13	12.1	04.9	63	58.4	23.6	13	104.8	42.3	63	151.1	61.1	13	197.5	79,8	63	243.9	98.5
14	13.0	05.2	64	59.3	24.0	14	105.7	42.7	64	152.1	61.4	14	198.4	80.2	64	244 8	98 9
15	13.9	05.6	65	60.3	24.3	15	106.6	43.1	65	153.0	61.8	15	199 3	80.5	65	245.7	99 3
16	14.8	06.0	66	61.2	24.7	116	107.6	43.5	166	153.9	62,2	216	200.3	80.9	266	246.6	99.6
17	15.8	06,4	67	62.1	25.1	17	108.5	43.8	67	154.8	62 6	17	201.2	81.3	67	247.6	100.0
18	16.7	06.7	68	63 0	25.5	18	109.4	44,2	68	155.8	62.9	18	202.1	81 7	68	248.5	100.4
19	17.6	07.1	69	64,0	25.8	19	110.3	44,6	69	156.7	63.3	19	203.1	82.0	69	249 4	100.8
20	18.5	07.5	70	64.9	26.2	20	111.3	45.0	70	157.6	63.7	20	204.0	82.4	70	250.3	101.1
21	19.5	07.9	71	65.8	26.6	121	112.2	45.3	171	158.6	64.1	221	204.9	82 8	271	251.3	101.5
22	20.4	08.2	72	66,8	27.0	22	113.1	45,7	72	159.5	64.4	22	205.8	83 2	72	252.2	101,9
23	21.3	08.6	73	67.7	27.3	23	114.0	46.1	73	160.4	64.8	23	206,7	83,5	73	253,1	102.3
24	22.3	09.0	74	68.6	27.7	24	115.0	46,5	74	161,3	65.2	24	207.7	83 9	74	254.1	102.6
25	23.2	09.4	75	69.5	28.1	25	116.9	46 8	75	162.3	65.6	25	208.6	84.3	75	255.0	103.0
26	24.1	09.7	76	70.5	28.5	126	116 8	47.2	176	163.2	65.9	226	209.5	84.7	276	255.9	103.4
27	25.0	10.1	77	71.4	28.8	27	117.8	47.6	77	164.1	66.3	27	210 5	85.0	77	256.8	103.8
28	26.0	10.5	78	72.3	29.2	28	118.7	47.9	78	165.0	66.7	28	211.4	85 4	78	257.8	104.1
29	26.9	10.9	79	73.2	29.6	29	119.6	48.3	79	166.0	67.1	29	212.3	85.8	79	258,7	104.5
30	27.9	11,2	80	74.2	30.0	30	120,5	48,7	80	166 9	67.4	30	213.3	86.2	80	259.6	104.9
31	28.7	11.6	81	75.1	30.3	131	121.5	49.1	181	167.8	67.8	231	214 2	86 5	281	260.5	105,3
32	29.7	12.0	82	76.0	30.7	32	122.4	49.4	82	168.8	68.2	32	215.1	86.9	82	261.5	105.6
33	30.6	12.4	83	77.0	31.1	33	123.3	49.8	83	169.7	68.6	33	216.0	87.3	83	262.4	106.0
34	31.5	12.7	84	77.9	31.5	34	124.2	50.2	84	170.6	68.9	34	217.0	87.7	84	263.3	106.4
35	32.5	13.1	85	78.8	31.8	35	125.2	50.6	85	171.5	69.3	35	217 9	88.0	85	264.3	106.8
36	33.4	13.5	86	79.7	32.2	136	126.1	50.9	186	172.5	69.7	236	218.8	88.4	286	265.2	107.1
37	34.3	13.9	87	80.7	32.6	37	127.0	51.3	87	173.4	70.1	37	219.7	88.8	87	266.1	107.5
38	35.2	14,2	88	81.6	33.0	38	128.0	51.7	88	174.3	70.4	38	220.7	89.2	88	267.0	107.9
39	36.2	14.6	89	82,5	33.3	39	128 9	52.1	89	175.2	70.8	39	221.6	89.5	89	268.0	108,3
40	37.1	15.0	90	83.4	33.7	40	129 8	52.4	90	176 2	71 2	40	222.5	89.9	90	268.9	108.6
41	38.0	15.4	91	84.4	34.1	141	130.7	52.8	191	177.1	71.5	241	223.5	90.3	291	269.8	109.0
42	38.9	15.7	92	85.3	34.5	42	131.7	53.2	92	178.0	71.9	42	224.4	90.7	92	270.7	109.4
43	39.9	16.1	93	86.2	34,8	43	132.6	53.6	93	178.9	72.3	43	225,3	91.0	93	271.7	109.8
44	40.8	16.5	94	87.2	35.2	44	133.5	53.9	94	179.8	72.7	44	226.2	91.4	94	272.6	110.1
45	41.7	16.9	95	88,1	35.6	45	134.4	54.3	95	180.8	73.0	45	227.2	91.8	95	273.5	110.5
46	42.7	17.2	96	89.0	36.0	146	135.4	54.7	196	181.7	73.4	246	228,1	92.2	296	274.5	110.9
47	43.6	17.6	97	89.9	36.3	47	136.3	55.1	97	182.7	73.8	47	229.0	92.5	97	275.4	111.3
48	44.5	18.0	98	90.9	36.7	48	137.2	55.4	98	183.6	74.2	48	229.9	92.9	98	276.3	111.6
49	45.4	18.4	99	91.8	37.1	49	138.2	55.8	99	184.5	74,5	49	230.9	93.3	99	277.2	112.0
50	46.4	18.7	100	92.7	37.5	150	139 1	56.2	200	185,4	74.9	250	231.8	93.7	300	278.2	112,4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	00,9	00.4	51	46,9	19.9	101	93,0	39.5	151	139,0	59,0	201	185.0	78.5	251	231.0	98.1
2	01.8	00,8	52	47.9	20.3	102	93.9	39,9	152	139.9	59.4	202	185.9	78.9	252	232.0	98.5
3	02.8	01,2	53	48.8	20.7	103	94.8	40.2	153	140.8	59.8	203	186,9	79.3	253	232.9	98.8
4	03.7	01.6	54	49.7	21.1	104	95.7	40.6	154	141,8	60.2	204	187.8	79.7	254	233.8	99.2
5	04.6	02.0	55	50.6	21.5	105	96.7	41.0	155	142.7	50.6	205	188.7	80.1	255	234.7	99.6
6	05.5	02.3	56	51.5	21.9	106	97.6	41.4	156	143.6	60.9	206	189.6	80,5	256	235.6	100.0
7	06.4	02.7	57	52.5	22.3	107	98.5	41.8	157	144.5	61.3	207	190.5	80,9	257	236,6	100.4
8	07.4	03.1	58	53.4	22.7	108	99.4	42.2	158	145.4	61.7	208	191.5	81.3	258	237.5	100.8
9	08.3	03,5	59	54.3	23.1	109	100.3	42.6	159	146.4	62.1	209	192.4	81.7	259	238.4	101.2
10	09.2	03.9	60	55.2	23.4	110	101.3	43.0	160	147.3	62.5	210	193.3	82.0	260	239.3	101.6
11	10.1	04.3	61	56.1	23,8	111	102.2	43.4	161	148.2	62.9	211	194.2	82,4	261	240.2	102.0
12	11.0	04.7	62	57.1	24.2	112	103.1	43.8	162	149.1	63.3	212	195.1	82.8	262	241.2	102.4
13	12.0	05.1	63	58.0	24.6	113	104.0	44.1	163	150.0	63.7	213	196.1	83.2	263	242.1	102,8
14	12.9	05.5	64	58.9	25.0	114	104,9	44.5	164	151.0	64.1	214	197.0	83.6	264	243.0	103.1
15	13.8	05,9	65	59.8	25.4	115	105.9	44.9	165	151.9	64.5	215	197.9	84.0	265	243.9	103.5
16	14.7	06.3	66	60.8	25.8	116	106.8	45.3	166	152.8	64.9	216	198.8	84.4	266	244.9	103,9
17	15.6	06.6	67	61.7	26.2	117	107.7	45.7	167	153.7	65,2	217	199.7	84.8	267	245.8	104.3
18	16.6	07.0	68	62.6	26.6	118	108.6	46.1	168	154.6	65.6	218	200.7	85.2	268	246.7	104.7
19	17.5	07.4	69	63.5	27.0	119	109.5	46.5	169	155.6	66.0	219	201.6	85.6	269	247.6	105.1
20	18.4	07.8	70	64.4	27.3	120	110.6	46.9	170	156.5	66.4	220	202.5	86.0	270	248.5	105.5
21	19.3	08,2	71	65.4	27.7	121	111.4	47.3	171	157.4	66.8	221	203.4	86.3	271	249.5	105.9
22	20,3	08.6	72	66.3	28.1	122	112,3	47.7	172	158.3	67.2	222	204.4	86.7	272	250.4	106.3
23	21.2	09.0	73	67.2	28.5	123	113.2	48.1	173	159.2	67.6	223	205.3	87.1	273	251.3	106.7
24	22.1	09.4	74	68.1	28.9	124	114.1	48,4	174	160.2	68.0	224	206.2	87.5	274	252.2	107.1
25	23.0	09.8	75	69.0	29.3	125	115.1	48.8	175	161.1	68.4	225	207.1	87.9	275	253.1	107.4
26	23.9	10.2	76	70.0	29.7	126	116.0	49.2	176	162.0	68,8	226	208.0	88.3	276	254.1	107.8
27	24,9	10.5	77	70.9	30.1	127	116.9	49.6	177	162.9	69.2	227	209.0	88.7	277	255.0	108.2
28	25.8	10.9	78	71.8	30.5	128	117.8	50.0	178	163.8	69,5	228	209.9	89.1	278	255.9	108.6
29	26.7	11.3	79	72.7	30.9	129	118.7	50.4	179	164.8	69.9	229	210.8	89.5	279	256.8	109.0
30	27.6	11.7	80	73.6	31.3	130	119.7	50.8	180	165.7	70.3	230	211.7	89.9	280	257.7	109.4
31	28.5	12.1	81	74.6	31.6	131	120.6	51.2	181	166.6	70.7	231	212.6	90,3	281	258.7	109,8
32	29.5	12.5	82	75.5	32.0	132	121.5	51,6	182	167.5	71.1	232	213.6	90.6	282	259.6	110.2
33	30.4	12.9	83	76.4	32.4	133	122.4	52.0	183	168.5	71.5	233	214.5	91.0	283	260,5	110,6
34	31.3	13.3	84	77.3	32.8	134	123.3	52.4	184	169.4	71.9	234	215.4	91,4	284	261.4	111.0
35	32.2	13.7	85	78.2	33.2	135	124.3	52.7	185	170.3	72.3	235	216.3	91.8	285	262.3	111.3
36	33.1	14.1	86	79,2	33.6	136	125,2	53.1	186	171.2	72.7	236	217.2	92.2	286	263.3	111.7
37	34.1	14,5	87	80.1	34.0	137	126.1	53.5	187	172.1	73.1	237	218.2	92.6	287	264.2	112.1
38	35.0	14.8	88	81.0	34.4	138	127.0	53.9	188	173.1	73,5	238	219.1	93.0	288	265.1	112,5
39	35.9	15.2	89	81.9	34.8	139	127.9	54.3	189	174.0	73.8	239	220.0	93.4	289	266.0	112.9
40	36.8	15.6	90	82.8	35.2	140	128.9	54.7	190	174.9	74.2	240	220.9	93.8	290	266.9	113.3
41	37.7	16.0	91	83.8	35.6	141	129.8	55.1	191	175.8	74.6	241	221.8	94,2	291	267.9	113.7
42	38,7	16.4	92	84.7	35.9	142	130,7	55.5	192	176.7	75.0	242	222.8	94,5	292	268.8	114,1
43	39.6	16.8	93	85.6	36.3	143	131.6	55.9	193	177.7	75.4	243	223.7	94.9	293	269.7	114.5
44	40.5	17.2	94	86.5	36.7	144	132.6	56.3	194	178.6	75.8	244	224.6	95.3	294	270.6	114.9
45	41.4	17.6	95	87.4	37.1	145	133.5	56.7	195	179.5	76.2	245	225.5	95.7	295	271.5	115.3
46	42.3	18.0	96	88.4	37.5	146	134.4	57.0	196	180.4	76.6	246	226.4	96.1	296	272.5	115.6
47	43.3	18.4	97	89.3	37.9	147	135.3	57.4	197	181.3	77.0	247	227.4	96.5	297	273.4	116.0
48	44.2	18.8	98	90.2	38.3	148	136.2	57.8	198	182.3	77.4	248	228.3	96 9	298	274.3	116 4
49	45.1	19.1	99	91.1	38.7	149	137.2	58.2	199	183.2	77,7	249	229.2	97.3	299	275.2	116.8
50	46.0	19.5	100	92.0	39.1	150	138.1	58.6	200	184.1	78.1	250	230.1	97.7	300	276.2	117.2
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00,9	00 4	51	46,6	20.7	101	92,3	41.1	151	137,9	61.4	201	183.6	81.7	251	229.3	102.1
2	01.8	00.8	52	47.5	21.1	02	93.2	41.5	52	138.9	61.8	02	184.5	82.2	52	230.	102.5
3	02.7	01,2	53	48.4	21.6	03	94.1	41.9	53	139.8	62.2	03	185.4	82.6	53	231.1	102,9
4	03.7	01.6	54	49,3	22.0	04	95.0	42.3	54	140.7	62.6	04	186.4	83.0	54	232.0	103 3
5	04.6	02.0	55	50.2	22.4	05	95.9	42.7	55	141.6	63.0	05	187.3	83.4	55	232.9	103.7
6	05.5	02 4	56	51.2	22.8	106	96.8	43.1	156	142.5	63.4	206	188.2	83.8	256	233.9	104,1
7	06.4	02.8	57	52.1	23.2	07	97.7	43 5	57	143.4	63.9	07	189.1	84.2	57	234.8	104.5
8	07.3	03.3	58	53.0	23.6	08	98.7	43.9	58	144.3	64.3	08	190.0	84.6	58	235.7	104 9
9	08.2	03,7	59	53.9	24,0	09	99.6	44.3	59	145.2	64.7	09	190.9	85.0	59	236.6	105.3
10	09.1	04,1	60	54.8	24.4	10	100.5	44.7	60	146.2	65.1	10	191.8	85.4	60	237.5	105.7
11	10.0	04.5	61	55.7	24.8	111	101.4	45.1	161	147.1	65.5	211	192.7	85.8	261	238.4	106.1
12	11.0	04.9	62	56.6	25.2	12	102.3	45.6	62	148.0	65.9	12	193.7	86.2	62	239.3	106.6
13	11.9	05,3	63	57.6	25.6	13	103.2	46.0	63	148.9	66.3	13	194.6	86 6	63	240.3	107.0
14	12.8	05.7	64	58.	26.0	14	104.1	46 4	64	149.8	66.7	14	195.5	87.0	64	241.2	107 4
15	13.7	06.1	65	59.4	26.4	15	105.1	46.8	65	150.7	67.1	15	196.4	87.4	65	242.1	107.8
16	14 6	06.5	66	60.3	26.8	116	106.0	47.2	166	151.6	67.5	216	197.3	87 8	266	243.0	108 2
17	15 5	06.9	67	61.2	27.2	17	106.9	47.6	67	152.6	67.9	17	198.2	88.3	67	243.9	108.6
18	16.4	07.3	68	62.1	27.7	18	107.8	48.0	68	153.5	68.3	18	199.1	88.7	68	244.8	109.0
19	17 4	07.7	69	63.	28.1	19	108.7	48,4	69	154.4	68.7	19	200.1	89.1	69	245.7	109.4
20	18.3	08.1	70	63.	28.5	20	109.6	48.8	70	155.3	69.1	20	201.0	89.5	70	246.6	109,8
21	19.2	08,5	71	64 9	28.9	121	110.5	49.2	171	156.2	69 5	221	201.9	89.9	271	247.6	110.2
22	20,1	08.9	72	65.8	29.3	22	111.4	49.6	72	157.1	70.0	22	202.8	90.3	72	248.5	110,6
23	21.0	09.4	73	66.7	29.7	23	112.4	50.0	73	158.0	70.4	23	203.7	90.7	73	249.4	111.0
24	21.9	09.8	74	67.6	30.1	24	113.3	50.4	74	158.9	70.8	24	204.6	91.1	74	250.3	111 4
25	22.8	10 2	75	68.5	30.5	25	114.2	50.8	75	159.9	71.2	25	205.5	91.5	75	251.2	111.8
26	23.8	10.6	76	69.4	30 9	126	115.1	51 2	176	160.8	71.6	226	206.5	91.9	276	252.1	112.2
27	24,7	11.0	77	70.	31.3	27	116.0	51,7	77	161.7	72.0	27	207.4	92.3	77	253.0	112,7
28	25.6	11.4	78	71.3	31.7	28	116.9	52 1	78	162.6	72.4	28	208.3	92.7	78	254.0	113.1
29	26.5	11.8	79	72,2	32.1	29	117.8	52.5	79	163.5	72.8	29	209.2	93.1	79	254.9	113.5
30	27.4	12.2	80	73.1	32.5	30	118.8	52.9	80	164.4	73.2	30	210.1	93.5	80	255.8	113.9
31	28.3	12.6	81	74.0	32.9	131	119.7	53 3	181	165.3	73.6	231	211.0	93.9	281	256.7	114,3
32	29.2	13 0	82	74.	33.3	32	120.6	53.7	82	166.3	74.0	32	211.9	94,4	82	257.6	114.7
33	30.1	13.4	83	75.8	33.8	33	121.5	54.1	83	167.2	74.4	33	212.8	94.8	83	258.5	115 1
34	31.1	13.8	84	76.7	34.2	34	122.4	54 5	84	168.1	74 8	34	213.8	95.2	84	259.4	115.5
35	32.0	14.2	85	77.6	34.6	35	123.3	54 9	85	169.0	75.2	35	214.7	95.6	85	260.3	115.9
36	32 9	14.6	86	78.6	35 0	136	124.2	55 3	186	169.9	75.6	236	215.6	96.0	286	261.3	116.3
37	33.8	15 0	87	79,5	35.4	37	125.1	55.7	87	170.8	76.1	37	216.5	96.4	87	262.2	116 7
38	34.7	15.5	88	80.4	35.8	38	126.1	56.1	88	171.7	76.5	38	217.4	96.8	88	263.1	117.1
39	35.6	15 9	89	81.3	36.2	39	127.0	56.5	89	172.7	76 9	39	218.3	97.2	89	264.0	117.5
40	36.5	16.3	90	82.2	36.6	40	127.9	56.9	90	173.6	77.3	40	219.2	97.6	90	264.9	117.9
41	37.5	16.7	91	83.1	37.0	141	128.8	57.3	191	174.5	77,7	241	220.2	98.0	291	265.8	118.3
42	38,4	17.1	92	84.0	37.4	42	129.7	57.8	92	175.4	78.1	42	221.1	98 4	92	266.7	118.8
43	39.3	17.5	93	85.0	37.8	43	130.6	58.2	93	176.3	78.5	43	222.0	98.8	93	267.7	119.2
44	40.2	17.9	94	85.9	38.2	44	131.5	58.6	94	177.2	78 9	44	222.9	99.2	94	268.6	119.6
45	41.1	18.3	95	86.8	38.6	45	132.5	59,0	95	178.1	79 3	45	223.8	99.6	95	269.5	120.0
46	42.0	18.7	96	87 7	39.0	146	133.4	59.4	196	179.0	79.7	246	224.7	100.0	296	270.4	120.4
47	42.9	19.1	97	88.6	39.4	47	134.3	59 8	97	180.0	80.1	47	225.6	100.5	97	271.3	120.8
48	43.8	19.5	98	89.5	39,9	48	135.2	60.2	98	180.9	80,5	48	226.5	100.9	98	272.2	121.2
49	44.8	19.9	99	90 4	40.3	49	136.1	60.6	99	181.8	80,0	49	227.5	101.3	99	273.1	121.6
50	45.7	20,2	100	91.4	40.7	150	137.0	61.1	200	182.7	81 3	250	228.4	101.7	300	274.1	122.0
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	L.	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00,9	00.4	51	46,2	21.6	101	91.5	42.7	151	136.9	63.8	201	182.2	84.9	251	227.5	106.1
2	01.8	00,8	52	47.1	22.0	02	92,4	43.1	52	137,8	64.2	02	183.1	85.4	52	228.4	106.5
3	02.7	01,3	53	48.0	22.4	03	93.3	43.5	53	138.7	64.7	03	184.0	85.8	53	229.3	106.9
4	03.6	01.7	54	48.9	22.8	04	94.3	44.0	54	139.6	65.1	04	184.9	86.2	54	230.2	107.3
5	04.5	02.1	55	49,8	23.2	05	95.2	44.4	55	140.5	65.5	05	185.8	86.6	55	231.1	107.8
6	05.4	02.5	56	50.8	23.7	106	96.1	44.8	156	141,4	65,9	206	186,7	87.1	256	232.0	108,2
7	06.3	03.0	57	51.7	24,1	07	97.0	45.2	57	142.3	66.3	07	187.6	87.5	57	232.9	108.6
8	07.3	03.4	58	52.6	24.5	08	97.9	45.6	58	143.2	66.8	08	188.5	87.9	58	233.8	109.0
9	08.2	03,8	59	53.5	24.9	09	98.8	46.1	59	144.1	67.2	09	189.4	88.3	59	234.7	109.5
10	09.1	04,2	60	54.4	25.4	10	99.7	46.5	60	145.0	67.6	10	190.3	88.7	60	235.6	109.9
11	10.0	04.6	61	55.3	25.8	111	100.6	46.9	161	145.9	68.0	211	191.2	89,2	261	236,5	110.3
12	10.9	05.0	62	56.2	26.2	12	101.5	47.3	62	146.8	68.5	12	192.1	89.6	62	237.5	110,7
13	11.8	05.5	63	57.1	26.6	13	102.4	47.8	63	147.7	68.9	13	193.0	90.0	63	238.4	111,1
14	12.7	05.9	64	58.0	27.0	14	103.3	48.2	64	148.6	69,3	14	193.9	90,4	64	239.3	111.6
15	13.6	06.3	65	58.9	27.5	15	104.2	48,6	65	149.5	69.7	15	194.9	90.9	65	240.2	112.0
16	14.5	06.8	66	59.8	27.9	116	105.1	49.0	166	150.4	70.2	216	195.8	91.3	266	241.1	112.4
17	15.4	07.2	67	60.7	28.3	17	106.0	49.4	67	151.4	70.6	17	196.7	91,7	67	242.0	112,8
18	16.3	07.6	68	61.6	28.7	18	106.9	49.9	68	152.3	71.0	18	197.6	92.1	68	242.9	113.3
19	17.2	08,0	69	62.5	29.2	19	107.8	50.3	69	153.2	71.4	19	198.5	92.5	69	243.8	113.7
20	18.1	08.5	70	63.4	29.6	20	108.8	50.7	70	154.1	71,8	20	199.4	93.0	70	244.7	114.1
21	19.0	08.9	71	64.3	30.0	121	109.7	51.1	171	155.0	72.3	221	200.3	93.4	271	245.6	114,5
22	19.9	09.3	72	65.3	30.4	22	110.6	51,6	72	155.9	72.7	22	201.2	93.8	72	246.5	114.9
23	20,8	09.7	73	66.2	30.8	23	111.5	52.0	73	156.8	73,1	23	202.1	94,2	73	247.4	115.4
24	21.8	10.1	74	67.1	31.3	24	112,4	52.4	74	157.7	73.5	24	203.0	94.7	74	248.3	115.8
25	22.7	10.6	75	68.0	31.7	25	113.3	52.8	75	158.6	74.0	25	203.9	95.1	75	249.2	116.2
26	23.6	11.0	76	68.9	32.1	126	114.2	53.2	176	159.5	74.4	226	204.8	95.5	276	250.1	116 6
27	24,5	11.4	77	69.8	32.5	27	115.1	53.7	77	160.4	74.8	27	205.7	95.9	77	251.0	117.1
28	25.4	11.8	78	70.7	33.0	28	116.0	54.1	78	161.3	75.2	28	206.6	96.4	78	252.0	117.5
29	26.3	12.3	79	71.6	33.4	29	116.9	54.5	79	162.2	75.6	29	207.5	96.8	79	252.9	117.9
30	27.2	12.7	80	72.5	33.8	30	117.8	54.9	80	163.1	76.1	30	208.4	97.2	80	253.8	118.3
31	28.1	13.1	81	73.4	34.2	131	118.7	55.4	181	164.0	76.5	231	209.4	97.6	281	254.7	118.8
32	29.0	13.5	82	74.3	34.7	32	119.6	55.8	82	164.9	76.9	32	210.3	98.0	82	255.6	119.2
33	29.9	13.9	83	75.2	35.1	33	120.5	56.2	83	165.9	77.3	33	211.2	98.5	83	256.5	119.6
34	30.8	14.4	84	76.1	35.5	34	121.4	56.6	84	166.8	77,8	34	212.1	98.9	84	257.4	120.0
35	31.7	14,8	85	77.0	35.9	35	122.4	57.1	85	167.7	78.2	35	213.0	99.3	85	258.3	120.4
36	32.6	15.2	86	77.9	36.3	136	123.3	57.5	186	168.6	78.6	236	213.9	99.7	286	259.2	120.9
37	33.5	15.6	87	78.8	36.8	37	124.2	57.9	87	169.5	79.0	37	214.8	100.2	87	260.1	121.3
38	34.4	16.1	88	79,8	37.2	38	125.1	58.3	88	170.4	79 4	38	215.7	100.6	88	261.0	121.7
39	35.3	16.5	89	80.7	37.6	39	126.0	58.7	89	171.3	79.9	39	216.6	101.0	89	261.9	122.1
40	36.3	16.9	90	81.6	38.0	40	126.9	59,2	90	172.2	80.3	40	217.5	101.4	90	262.8	122.6
41	37.2	17.3	91	82.5	38,5	141	127.8	59.6	191	173.1	80,7	241	218.4	101.8	291	263.7	123.0
42	38,1	17.7	92	83.4	38.9	42	128.7	60.0	92	174.0	81,1	42	219.3	102.3	92	264.6	123 4
43	39.0	18.2	93	84.3	39.3	43	129.6	60.4	93	174.9	81.6	43	220.2	102 7	93	265.5	123.8
44	39.9	18.6	94	85.2	39.7	44	130.5	60 9	94	175.8	82.0	44	221.1	103.1	94	266.5	124,2
45	40.8	19.0	95	86.1	40.1	45	131.4	61.3	95	176.7	82.4	45	222.0	103,5	95	267.4	124.7
46	41.7	19.4	96	87.0	40.6	146	132.3	61.7	196	177.6	82.8	246	222,9	104.0	296	268.3	125.1
47	42.6	19.9	97	87 9	41.0	47	133,2	62.1	97	178.5	83.3	47	223.9	104.4	97	269.2	125,5
48	43.5	20,3	98	88.8	41.4	48	134.1	62.5	98	179.4	83.7	48	224.8	104 8	98	270.1	125.6
49	44.4	20,7	99	89 7	41.8	49	135.0	63.0	99	180.4	84.1	49	225 7	105.2	99	271.0	126.4
50	45.3	21.1	100	90.6	42.3	150	135.9	63.4	200	181.3	84.5	250	226 6	105 7	300	271.9	126.8
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	00,9	00.4	51	45.8	22.4	101	90.8	44.3	151	135.7	66.2	201	180.7	88.1	251	225.6	110.0
2	01.8	00,9	52	46,7	22.8	02	91.7	44.7	52	136.6	66.6	02	181.6	88.6	52	226.5	110.5
3	02.7	01,3	53	47.6	23.2	03	92,6	45.2	53	137,5	67.1	03	182.5	89.0	53	227.4	110,9
4	03.6	01,8	54	48.5	23.7	04	93.5	45.6	54	138.4	67.5	04	183.4	89,4	54	228.3	111,4
5	04.5	02 2	55	49,4	24,1	05	94.4	46.0	55	139.3	68.0	05	184.3	89.9	55	229.2	111 8
6	05.4	02.6	56	50 3	24.6	106	95.3	46 5	156	140.2	68.4	206	185.2	90.3	256	230.1	112.2
7	06.3	03.1	57	51.2	25.0	07	96.2	46.9	57	141.1	68.8	07	186.1	90.7	57	231.0	112,7
8	07.2	03.5	58	52.1	25 4	08	97.1	47.3	58	142.0	69.3	08	187.0	91.2	58	231.9	113.1
9	08.1	03,9	59	53.0	25.9	09	98.0	47.8	59	142.9	69 7	09	187.8	91.6	59	232.8	113.5
10	09 0	04,4	60	53.9	26.3	10	98 9	48.2	60	143 8	70.1	10	188.7	92.1	60	233.7	114.0
11	09 9	04 8	61	54.8	26.7	111	99.8	48,7	161	144.7	70.6	211	189.0	92.5	261	234.6	114,4
12	10.8	05.3	62	55.7	27.2	12	100.7	49.1	62	145.6	71.0	12	190.5	92 9	62	235.5	114.9
13	11.7	05,7	63	56.6	27.6	13	101.6	49.5	63	146 5	71.5	13	191.4	93.4	63	236,4	115.3
14	12.6	06.1	64	57.5	28.1	14	102.5	50.0	64	147.4	71,9	14	192.3	93.8	64	237.3	115.7
15	13.5	06.6	65	58.4	28.5	15	103.4	50.4	65	148.3	72.3	15	193.2	94,3	65	238.2	116.2
16	14 4	07.0	66	59 3	28.9	116	104.3	50.9	166	149.2	72.8	216	194.1	94.7	166	239.1	116 6
17	15 3	07.5	67	60.2	19.4	17	105.2	51.3	67	150.1	73,2	17	195.0	95.1	67	240.0	117.1
18	16.2	07,9	68	61.1	29.8	18	106.1	51,7	68	151.0	73.7	18	195 9	95.6	68	240,9	117.5
19	17 1	08,3	69	62.0	30.2	19	107.0	52.2	69	151.9	74.1	19	196.8	96.0	69	241.8	117.9
20	18 0	08.7	70	62.9	30.7	20	107.9	52.6	70	152.8	74.5	20	197.7	96 4	70	242.7	118.4
21	18.9	09.2	71	63 8	31.1	121	108.8	53.0	171	153 7	75.0	221	198.6	96.9	271	243.6	118.8
22	19.8	09.6	72	64 7	31.6	22	109.7	53.5	72	154.6	75 4	22	199.5	97.3	72	244.5	119.2
23	20,7	10.1	73	55.6	32.0	23	110.6	53.9	73	155.5	75.8	23	200.4	97.8	73	245.4	119.7
24	21.6	10.5	74	66.5	32.4	24	111.5	54.4	74	156.4	76.3	24	201.3	98.2	74	246.3	120.1
25	22.5	11.0	75	67.4	32.9	25	112,4	54.8	75	157.3	76.7	25	202.2	98.6	75	247.2	120.6
26	23.4	11.4	76	68.3	33.3	126	113.2	55.2	176	158.2	77.2	226	203.1	99.1	276	248.1	121.0
27	24,3	11.8	77	69.2	33.8	27	114.1	55.7	77	159.1	77,6	27	204.0	99.5	77	249.0	121.4
28	25.2	12.3	78	70.1	34.2	28	115.0	56.1	78	160.0	78.0	28	204.9	100.0	78	249 9	121.9
29	26.1	12.7	79	71.0	34.6	29	115.9	56.6	79	160.9	78.5	29	205.8	100.4	79	250 8	122.3
30	27.0	13.2	80	71.9	35.1	30	116.8	57.0	80	161.8	78.9	30	206.7	100.8	80	251.7	122.8
31	27 9	13.6	81	72,8	35.5	131	117.7	57.4	181	162.7	79 4	231	207.6	101.3	281	252.6	123 2
32	28.8	14.0	82	73.7	35 9	32	118.6	57.9	82	163.6	79.8	32	208.5	101.7	82	253.5	123.6
33	29.7	14,5	83	74.6	36.4	33	119.5	58.3	83	164.5	80.2	33	209.4	102.1	83	254.4	124,1
34	30.6	14 9	84	75.5	36.8	34	120 4	58.7	84	165.4	80,7	34	210.3	102.6	84	255.3	124.5
35	31.5	15 3	85	76.4	37.3	35	121.3	59.2	85	166.3	81.1	35	211.2	103.0	85	256.2	124 9
36	32.4	15.8	86	77.3	37.7	136	122.2	59.6	186	167.2	81.5	236	212.1	103,5	286	257.1	125,4
37	33.3	16.2	87	78.2	38.1	37	123.1	60.1	87	168.1	82.0	37	213.0	103.9	87	258.0	125.8
38	34.2	16.7	88	79.1	38.6	38	124.0	60.5	88	169.0	82.4	38	213.9	104.3	88	258.9	126.3
39	35.1	17.1	89	80.0	39.0	39	124.9	60.9	89	169.9	82.9	39	214.8	104.8	89	259.8	126.7
40	36.0	17.5	90	80.9	39.5	40	125.8	61.4	90	170.8	83.3	40	215.7	105.2	90	260,7	127.1
41	36.9	18.0	91	81.8	39,9	141	126.7	61.8	191	171.7	83.7	241	216 6	105.7	291	261.6	127.6
42	37.7	18.4	92	82.7	40.3	42	127.6	62.3	92	172.6	84.2	42	217.5	106.1	92	262.4	128,0
43	38,6	18 9	93	83.6	40.8	43	128.5	62.7	93	173,5	84.6	43	218.4	106.5	93	263.3	128.5
44	39.5	19 3	94	84.5	41.2	44	129.4	63.1	94	174.4	85.0	44	219.3	107.0	94	264.2	128.9
45	40.4	19.7	95	85.4	41.6	45	130.3	63.6	95	175.3	85.5	45	220.2	107.4	95	265.1	129.3
46	41.3	20,2	96	86.3	42.1	146	131.2	64.0	196	176.2	85.9	246	221.1	107.8	296	266.0	129.8
47	42.2	20,6	97	87 2	42.5	47	132.1	64.4	97	177.1	86.4	47	222.0	108.3	97	266.9	130.2
48	43.1	21.0	98	88.1	43.0	48	133.0	64.9	98	178.0	86.8	48	222,9	108.7	98	267.8	130.6
49	44 0	21.5	99	89.0	43.4	49	133,9	65.3	99	178.9	87.2	49	223.8	109.2	99	268.7	131.1
50	44.9	21.9	100	89 9	43.8	150	134.8	65.8	200	179.8	87.7	250	224.7	109.6	300	269.6	131.5
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.5	51	45.4	23.2	101	90.0	45.9	151	134.5	68.6	201	179.1	91.3	251	223.6	114.0
2	01.8	00.9	52	46.3	23.6	02	90.9	46.3	52	135.4	69.0	02	180.0	91.7	52	224.5	114.4
3	2.7	01.4	53	47.2	24.1	03	91.8	46.8	53	136.3	69.5	03	180.9	92.2	53	225.4	114.9
4	03.6	01.8	54	48.1	24.5	04	92.7	47.2	54	137.2	69.9	04	181.8	92.6	54	226.3	115.3
5	04.5	02.3	55	49.0	25.0	05	93.6	47.7	55	138.1	70.4	05	182.7	93.1	55	227.2	115.8
6	05.3	02.7	56	49.9	25.4	106	94.4	48.1	156	139.0	70.8	206	183.5	93.5	256	228.1	116.2
7	06.2	03.2	57	50.8	25.9	07	95.3	48.6	57	139.9	71.3	07	184.4	94.0	57	229.0	116.7
8	07.1	03.6	58	51.7	26.3	08	96.2	49.0	58	140.8	71.7	08	185.3	94.4	58	229.9	117.1
9	08.0	04.1	59	52.6	26.8	09	97.1	49.5	59	141.7	72.2	09	186.2	94.9	59	230.8	117.6
10	08.9	04.5	60	53.5	27.2	10	98.0	49.9	60	142.6	72.6	10	187.1	95.3	60	231.7	118.0
11	09.8	05.0	61	54.4	27.7	111	98.9	50.4	161	143.5	73.1	211	188.0	95.8	261	232.6	118.5
12	10.7	05.4	62	55.2	28.1	12	99.8	50.8	62	144.3	73.5	12	188.9	96.2	62	233.4	118.9
13	11.6	05.9	63	56.1	28.6	13	100.7	51.3	63	145.2	74.0	13	189.8	96.7	63	234.3	119.4
14	12.5	06.4	64	57.0	29.1	14	101.6	51.8	64	146.1	74.5	14	190.7	97.2	64	235.2	119.9
15	13.4	06.8	65	57.9	29.5	15	102.5	52.2	65	147.0	74.9	15	191.6	97.6	65	236.1	120.3
16	14.3	07.3	66	58.8	30.0	116	103.4	52.7	166	147.9	75.4	216	192.5	98.1	266	237.0	120.8
17	15.1	07.7	67	59.7	30.4	17	104.2	53.1	67	148.8	75.8	17	193.3	98.5	67	237.9	121.2
18	16.0	08.2	68	60.6	30.9	18	105.1	53.6	68	149.7	76.3	18	194.2	99.0	68	238.8	121.7
19	16.9	08.6	69	61.5	31.3	19	106.0	54.0	69	150.6	76.7	19	195.1	99.4	69	239.7	122.1
20	17.8	09.1	70	62.4	31.8	20	106.9	54.5	70	151.5	77.2	20	196.0	99.9	70	240.6	122.6
21	18.7	09.5	71	63.3	32.2	121	107.8	54.9	171	152.4	77.6	221	196.9	100.3	271	241.5	123.3
22	19.6	10.0	72	64.2	32.7	22	108.7	55.4	72	153.3	78.1	22	197.8	100.8	72	242.4	123.5
23	20.5	10.4	73	65.0	33.1	23	109.6	55.8	73	154.1	78.5	23	198.7	101.2	73	243.2	123.9
24	21.4	10.9	74	65.9	33.6	24	110.5	56.3	74	155.0	79.0	24	199.6	101.7	74	244.1	124.4
25	22.3	11.4	75	66.8	34.1	25	111.4	56.8	75	155.9	79.5	25	200.5	102.2	75	245.0	124.9
26	23.2	11.8	76	67.7	34.5	126	112.3	57.2	176	156.8	79.9	226	201.4	102.6	276	245.9	125.3
27	24.1	12.3	77	68.6	35.0	27	113.2	57.7	77	157.7	80.4	27	202.3	103.1	77	246.8	125.8
28	24.9	12.7	78	69.5	35.4	28	114.0	58.1	78	158.6	80.8	28	203.1	103.5	78	247.7	126.2
29	25.8	13.2	79	70.4	35.9	29	114.9	58.6	79	159.5	81.3	29	204.0	104.0	79	248.6	126.7
30	26.7	13.6	80	71.3	36.3	30	115.8	59.0	80	160.4	81.7	30	204.9	104.4	80	249.5	127.1
31	27.6	14.1	81	72.2	36.8	131	116.7	59.5	181	161.3	82.2	231	205.8	104.9	281	250.4	127.6
32	28.5	14.5	82	73.1	37.2	32	117.6	59.9	82	162.2	82.6	32	206.7	105.3	82	251.3	128.0
33	29.4	15.0	83	74.0	37.7	33	118.5	60.4	83	163.1	83.1	33	207.6	105.8	83	252.2	128.5
34	30.3	15.4	84	74.8	38.1	34	119.4	60.8	84	163.9	83.5	34	208.5	106.2	84	253.0	128.9
35	31.2	15.9	85	75.7	38.6	35	120.3	61.3	85	164.8	84.0	35	209.4	106.7	85	253.9	129.4
36	32.1	16.3	86	76.6	39.0	136	121.2	61.7	186	165.7	84.4	236	210.3	107.1	286	254.8	129.8
37	33.0	16.8	87	77.5	39.5	37	122.1	62.2	87	166.6	84.9	37	211.2	107.6	87	255.7	130.3
38	33.9	17.3	88	78.4	40.0	38	123.0	62.7	88	167.5	85.4	38	212.1	108.1	88	256.6	130.8
39	34.7	17.7	89	79.3	40.4	39	123.8	63.1	89	168.4	85.8	39	212.9	108.5	89	257.5	131.2
40	35.6	18.2	90	80.2	40.9	40	124.7	63.6	90	169.3	86.3	40	213.8	109.0	90	258.4	131.7
41	36.5	18.6	91	81.1	41.3	141	125.6	64.0	191	170.2	86.7	241	214.7	109.4	291	259.3	132.1
42	37.4	19.1	92	82.0	41.8	42	126.5	64.5	92	171.1	87.2	42	215.6	109.9	92	260.2	132.6
43	38.3	19.5	93	82.9	42.2	43	127.4	64.9	93	172.0	87.6	43	216.5	110.3	93	261.1	133.0
44	39.2	20.0	94	83.8	42.7	44	128.3	65.4	94	172.9	88.1	44	217.4	110.8	94	262.0	133.5
45	40.1	20.4	95	84.6	43.1	45	129.2	65.8	95	173.7	88.5	45	218.3	111.2	95	262.8	133.9
46	41.0	20.9	96	85.5	43.6	146	130.1	66.3	196	174.6	89.0	246	219.2	111.7	296	263.7	134.2
47	41.9	21.3	97	86.4	44.0	47	131.0	66.7	97	175.5	89.4	47	220.1	112.1	97	264.6	134.8
48	42.8	21.8	98	87.3	44.5	48	131.9	67.2	98	176.4	89.9	48	221.0	112.6	98	265.5	135.3
49	43.7	22.2	99	88.2	44.9	49	132.8	67.6	99	177.3	90.3	49	221.9	113.0	99	266.4	135.7
50	44.6	22.7	100	89.1	45.4	150	133.7	68.1	200	178.2	90.8	250	222.8	113.5	300	267.3	136.2
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 63 Deg.

E 2

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.5	51	45.0	23.9	101	89.2	47.4	151	133.3	70.9	201	177.5	94.4	251	221.6	117.8
2	01.8	00.9	52	45.9	24.4	02	90.1	47.9	52	134.2	71.4	02	178.4	94.8	52	222.5	118.3
3	02.6	01.4	53	46.8	24.9	03	90.9	48.4	53	135.1	71.8	03	179.2	95.3	53	223.4	118.8
4	03.5	01.9	54	47.7	25.4	04	91.8	48.8	54	136.0	72.3	04	180.1	95.8	54	224.3	119.2
5	04.4	02.3	55	48.6	25.8	05	92.7	49.3	55	136.9	72.8	05	181.0	96.2	55	225.2	119.7
6	05.3	02.8	56	49.4	26.3	106	93.6	49.8	156	137.7	73.2	206	181.9	96.7	256	226.0	120.2
7	06.2	03.3	57	50.3	26.8	07	94.5	50.2	57	138.6	73.7	07	182.8	97.2	57	226.9	120.7
8	07.1	03.8	58	51.2	27.2	08	95.4	50.7	58	139.5	74.2	08	183.7	97.7	58	227.8	121.1
9	07.9	04.3	59	52.1	27.7	09	96.2	51.2	59	140.4	74.6	09	184.5	98.1	59	228.7	121.6
10	08.8	04.7	60	53.0	28.2	10	97.1	51.6	60	141.3	75.1	10	185.4	98.6	60	229.6	122.1
11	09.7	05.2	61	53.9	28.6	111	98.0	52.1	161	142.2	75.6	211	186.3	99.1	261	230.5	122.5
12	10.6	05.6	62	54.7	29.1	12	98.9	52.6	62	143.0	76.1	12	187.2	99.5	62	231.3	123.0
13	11.5	06.1	63	55.6	29.6	13	99.8	53.1	63	143.9	76.5	13	188.1	100.0	63	232.2	123.5
14	12.4	06.6	64	56.5	30.0	14	100.7	53.5	64	144.8	77.0	14	189.0	100.5	64	233.1	123.9
15	13.2	07.0	65	57.4	30.5	15	101.5	54.0	65	145.7	77.5	15	189.8	100.9	65	234.0	124.4
16	14.1	07.5	66	58.3	31.0	116	102.4	54.5	166	146.6	77.9	216	190.7	101.4	266	234.9	124.9
17	15.0	08.0	67	59.2	31.5	17	103.3	54.9	67	147.5	78.4	17	191.6	101.9	67	235.8	125.4
18	15.9	08.5	68	60.0	31.9	18	104.2	55.4	68	148.3	78.9	18	192.5	102.4	68	236.6	125.8
19	16.8	08.9	69	60.9	32.4	19	105.1	55.9	69	149.2	79.3	19	193.4	102.8	69	237.5	126.3
20	17.7	09.4	70	61.8	32.9	20	106.0	56.3	70	150.1	79.8	20	194.3	103.3	70	238.4	126.8
21	18.5	09.9	71	62.7	33.3	121	106.8	56.8	171	151.0	80.3	221	195.1	103.8	271	239.3	127.2
22	19.4	10.3	72	63.6	33.8	22	107.7	57.3	72	151.9	80.8	22	196.0	104.2	72	240.2	127.7
23	20.3	10.8	73	64.5	34.3	23	108.6	57.7	73	152.8	81.2	23	196.9	104.7	73	241.1	128.2
24	21.2	11.3	74	65.3	34.7	24	109.5	58.2	74	153.6	81.7	24	197.8	105.2	74	241.9	128.6
25	22.1	11.7	75	66.2	35.2	25	110.4	58.7	75	154.5	82.2	25	198.7	105.6	75	242.8	129.1
26	23.0	12.2	76	67.1	35.7	126	111.3	59.2	176	155.4	82.6	226	199.6	106.1	276	243.7	129.6
27	23.8	12.7	77	68.0	36.2	27	112.1	59.6	77	156.3	83.1	27	200.4	106.6	77	244.6	130.1
28	24.7	13.1	78	68.9	36.6	28	113.0	60.1	78	157.2	83.6	28	201.3	107.0	78	245.5	130.5
29	25.6	13.6	79	69.8	37.1	29	113.9	60.6	79	158.1	84.0	29	202.2	107.5	79	246.4	131.0
30	26.5	14.1	80	70.6	37.6	30	114.8	61.0	80	158.9	84.5	30	203.1	108.0	80	247.2	131.5
31	27.4	14.6	81	71.5	38.0	131	115.7	61.5	181	159.8	85.0	231	204.0	108.5	281	248.1	131.9
32	28.3	15.0	82	72.4	38.5	32	116.6	62.0	82	160.7	85.4	32	204.9	108.9	82	249.0	132.4
33	29.1	15.5	83	73.3	39.0	33	117.4	62.4	83	161.6	85.9	33	205.7	109.4	83	249.9	132.9
34	30.0	16.0	84	74.2	39.4	34	118.3	62.9	84	162.5	86.4	34	206.6	109.9	84	250.8	133.3
35	30.9	16.4	85	75.1	39.9	35	119.2	63.4	85	163.4	86.9	35	207.5	110.3	85	251.7	133.8
36	31.8	16.9	86	75.9	40.4	136	120.1	63.9	186	164.2	87.3	236	208.4	110.8	286	252.5	134.3
37	32.7	17.4	87	76.8	40.8	37	121.0	64.3	87	165.1	87.8	37	209.3	111.3	87	253.4	134.7
38	33.6	17.8	88	77.7	41.3	38	121.9	64.8	88	166.0	88.3	38	210.2	111.7	88	254.3	135.2
39	34.5	18.3	89	78.6	41.8	39	122.7	65.3	89	166.9	88.7	39	211.0	112.2	89	255.2	135.7
40	35.3	18.8	90	79.5	42.3	40	123.6	65.7	90	167.8	89.2	40	211.9	112.7	90	256.1	136.2
41	36.2	19.2	91	80.4	42.7	141	124.5	66.2	191	168.7	89.7	241	212.8	113.1	291	257.0	136.6
42	37.1	19.7	92	81.2	43.2	42	125.4	66.7	92	169.5	90.1	42	213.7	113.6	92	257.8	137.1
43	38.0	20.2	93	82.1	43.7	43	126.3	67.1	93	170.4	90.6	43	214.6	114.1	93	258.7	137.6
44	38.9	20.7	94	83.0	44.1	44	127.2	67.6	94	171.3	91.1	44	215.5	114.6	94	259.6	138.0
45	39.7	21.1	95	83.9	44.6	45	128.0	68.1	95	172.2	91.6	45	216.3	115.0	95	260.5	138.5
46	40.6	21.6	96	84.8	45.1	146	128.9	68.5	196	173.1	92.0	246	217.2	115.5	296	261.4	139.0
47	41.5	22.1	97	85.7	45.5	47	129.8	69.0	97	174.0	92.5	47	218.1	115.9	97	262.3	139.4
48	42.4	22.5	98	86.5	46.0	48	130.7	69.5	98	174.8	93.0	48	219.0	116.4	98	263.1	139.9
49	43.3	23.0	99	87.4	46.5	49	131.6	70.0	99	175.7	93.4	49	219.9	116.9	99	264.0	140.4
50	44.2	23.5	100	88.3	47.0	150	132.5	70.4	200	176.6	93.9	250	220.8	117.4	300	264.4	140.9
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.5	51	44.6	24.7	101	88.3	49.0	151	132.1	73.2	201	175.8	97.4	251	219.5	121.7
2	01.7	01.0	52	45.5	25.2	102	89.2	49.4	152	132.9	73.7	202	176.7	97.9	252	220.4	122.2
3	02.6	01.5	53	46.4	25.7	103	90.1	49.9	153	133.8	74.2	203	177.5	98.4	253	221.3	122.7
4	03.5	01.9	54	47.2	26.2	104	91.0	50.4	154	134.7	74.7	204	178.4	98.9	254	222.2	123.1
5	04.4	02.4	55	48.1	26.7	105	91.8	50.9	155	135.6	75.1	205	179.3	99.4	255	223.0	123.6
6	05.2	02.9	56	49.0	27.1	106	92.7	51.4	156	136.4	75.6	206	180.2	99.9	256	223.9	124.1
7	06.1	03.4	57	49.9	27.6	107	93.6	51.9	157	137.3	76.1	207	181.0	100.4	257	224.8	124.6
8	07.0	03.9	58	50.7	28.1	108	94.5	52.4	158	138.2	76.6	208	181.9	100.8	258	225.6	125.1
9	07.9	04.4	59	51.6	28.6	109	95.3	52.8	159	139.1	77.1	209	182.8	101.3	259	226.5	125.6
10	08.7	04.8	60	52.5	29.1	110	96.2	53.3	160	139.9	77.6	210	183.7	101.8	260	227.4	126.0
11	09.6	05.3	61	53.4	29.6	111	97.1	53.8	161	140.8	78.1	211	184.5	102.3	261	228.3	126.5
12	10.5	05.8	62	54.2	30.1	112	98.0	54.3	162	141.7	78.5	212	185.4	102.8	262	229.1	127.0
13	11.4	06.3	63	55.1	30.5	113	98.8	54.8	163	142.6	79.0	213	186.3	103.3	263	230.0	127.5
14	12.2	06.8	64	56.0	31.0	114	99.7	55.3	164	143.4	79.5	214	187.2	103.7	264	230.9	128.0
15	13.1	07.3	65	56.8	31.5	115	100.6	55.8	165	144.3	80.0	215	188.0	104.2	265	231.8	128.5
16	14.0	07.8	66	57.7	32.0	116	101.5	56.2	166	145.2	80.5	216	188.9	104.7	266	232.6	129.0
17	14.9	08.2	67	58.6	32.5	117	102.3	56.7	167	146.1	81.0	217	189.8	105.2	267	233.5	129.4
18	15.7	08.7	68	59.5	33.0	118	103.2	57.2	168	146.9	81.4	218	190.7	105.7	268	234.4	129.9
19	16.6	09.2	69	60.3	33.5	119	104.1	57.7	169	147.8	81.9	219	191.5	106.2	269	235.3	130.4
20	17.5	09.7	70	61.2	33.9	120	105.0	58.2	170	148.7	82.4	220	192.4	106.7	270	236.1	130.9
21	18.4	10.2	71	62.1	34.4	121	105.8	58.7	171	149.6	82.9	221	193.3	107.1	271	237.0	131.4
22	19.2	10.7	72	63.0	34.9	122	106.7	59.1	172	150.4	83.4	222	194.2	107.6	272	237.9	131.9
23	20.1	11.2	73	63.8	35.4	123	107.6	59.6	173	151.3	83.9	223	195.0	108.1	273	238.8	132.4
24	21.0	11.6	74	64.7	35.9	124	108.5	60.1	174	152.2	84.4	224	195.9	108.6	274	239.6	132.8
25	21.9	12.1	75	65.6	36.4	125	109.3	60.6	175	153.1	84.8	225	196.8	109.1	275	240.5	133.3
26	22.7	12.6	76	66.5	36.8	126	110.2	61.1	176	153.9	85.3	226	197.7	109.6	276	241.4	133.8
27	23.6	13.1	77	67.3	37.3	127	111.1	61.6	177	154.8	85.8	227	198.5	110.0	277	242.3	134.3
28	24.5	13.6	78	68.2	37.8	128	111.9	62.1	178	155.7	86.3	228	199.4	110.5	278	243.1	134.8
29	25.4	14.1	79	69.1	38.3	129	112.8	62.5	179	156.6	86.8	229	200.3	111.0	279	244.0	135.3
30	26.2	14.5	80	70.0	38.8	130	113.7	63.0	180	157.4	87.3	230	201.2	111.5	280	244.9	135.7
31	27.1	15.0	81	70.8	39.3	131	114.6	63.5	181	158.3	87.7	231	202.0	112.0	281	245.8	136.2
32	28.0	15.5	82	71.7	39.8	132	115.4	64.0	182	159.2	88.2	232	202.9	112.5	282	246.6	136.7
33	28.9	16.0	83	72.6	40.2	133	116.3	64.5	183	160.1	88.7	233	203.8	113.0	283	247.5	137.2
34	29.7	16.5	84	73.5	40.7	134	117.2	65.0	184	160.9	89.2	234	204.7	113.4	284	248.4	137.7
35	30.6	17.0	85	74.3	41.2	135	118.1	65.4	185	161.8	89.7	235	205.5	113.9	285	249.3	138.2
36	31.5	17.5	86	75.2	41.7	136	118.9	65.9	186	162.7	90.2	236	206.4	114.4	286	250.1	138.7
37	32.4	17.9	87	76.1	42.2	137	119.8	66.4	187	163.6	90.7	237	207.3	114.9	287	251.0	139.1
38	33.2	18.4	88	77.0	42.7	138	120.7	66.9	188	164.4	91.1	238	208.2	115.4	288	251.9	139.6
39	34.1	18.9	89	77.8	43.1	139	121.6	67.4	189	165.3	91.6	239	209.0	115.9	289	252.8	140.1
40	35.0	19.4	90	78.7	43.6	140	122.4	67.9	190	166.2	92.1	240	209.9	116.4	290	253.6	140.6
41	35.9	19.9	91	79.6	44.1	141	123.3	68.4	191	167.0	92.6	241	210.8	116.8	291	254.5	141.1
42	36.7	20.4	92	80.5	44.6	142	124.2	68.8	192	167.9	93.1	242	211.7	117.3	292	255.4	141.6
43	37.6	20.8	93	81.3	45.1	143	125.1	69.3	193	168.8	93.6	243	212.5	117.8	293	256.3	142.0
44	38.5	21.3	94	82.2	45.6	144	125.9	69.8	194	169.7	94.1	244	213.4	118.3	294	257.1	142.5
45	39.4	21.8	95	83.1	46.1	145	126.8	70.3	195	170.5	94.5	245	214.3	118.8	295	258.0	143.0
46	40.2	22.3	96	84.0	46.5	146	127.7	70.8	196	171.4	95.0	246	215.2	119.3	296	258.9	143.5
47	41.1	22.8	97	84.8	47.0	147	128.6	71.3	197	172.3	95.5	247	216.0	119.7	297	259.8	144.0
48	42.0	23.3	98	85.7	47.5	148	129.4	71.8	198	173.2	96.0	248	216.9	120.2	298	260.6	144.5
49	42.9	23.8	99	86.6	48.0	149	130.3	72.2	199	174.0	96.5	249	217.8	120.7	299	261.5	145.0
50	43.7	24.2	100	87.5	48.5	150	131.2	72.7	200	174.9	97.0	250	218.7	121.2	300	262.4	145.4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dif	Lat	Dep	Dif	Lat	Dep	Dif	Lat	Dep	Dif	Lat	Dep	Dif	Lat	Dep	Dif	Lat	Dep
1	00 9	00 5	51	44.2	25 5	101	87.5	50.5	151	130.8	75 5	201	174.1	100,5	251	217,4	125.5
2	01.7	01.0	52	45.0	26.0	02	88.3	51.0	52	131.6	76.0	02	174.9	101.0	52	218.2	126.0
3	02.6	01 5	53	45.9	26.5	03	89 2	51.5	53	132.5	76.5	03	175 8	101.5	53	219.1	126,5
4	03.5	02 0	54	46.8	27.0	04	90.1	52 0	54	133.4	77.0	04	176.7	102.0	54	220,0	127.0
5	04 3	02.5	55	47.6	27.5	05	90.9	52 5	55	134.2	77.5	05	177.5	102.5	55	220,8	127.5
6	05.2	03.0	56	48.5	28.0	106	91.8	53.0	156	135.1	78 0	206	178.4	103 0	256	221.7	128 0
7	06.1	03 5	57	49 4	28.5	07	92.7	53.5	57	136 0	78.5	07	179.3	103.5	57	222.6	128.5
8	06 9	04.0	58	50,2	29 0	08	93.5	54.0	58	136.8	79.0	08	180.1	104.0	58	223.4	129 0
9	07.8	04 5	59	51.1	29.5	09	94 4	54 5	59	137,7	79.5	09	181.0	104.5	59	224.3	129,5
10	08 7	05.0	60	52.0	30.0	10	95.3	55.0	60	138.6	80.0	10	181.9	105,0	60	225.2	130 0
11	09.5	05.5	61	52.8	30.5	111	96.1	55.5	161	139.4	80.5	211	182.7	105.5	261	226 0	130.5
12	10.4	06.0	62	53.7	31.0	12	97.0	56.0	62	140.3	81.0	12	183.6	106.0	62	226.9	131 0
13	11.3	06,5	63	54.6	31.5	13	97 9	56.5	63	141.2	81,5	13	184.5	106.5	63	227.8	131.5
14	12.1	07 0	64	55 4	32.0	14	98.7	57,0	64	142.0	82.0	14	185,3	107.0	64	228.6	132,0
15	13.0	07.5	65	56.3	32.5	15	99 6	57.5	65	142,9	82.5	15	186.2	107.5	65	229 5	132 5
16	13.9	08.0	66	57.2	33.0	116	100.5	58.0	166	143.8	83.0	216	187.1	108.0	266	230 4	133 0
17	14 7	08.5	67	58.0	33.5	17	101.3	58,5	67	144.6	83.5	17	187.9	108.5	67	231.2	133 5
18	15 6	09.0	68	58,9	34.0	18	102.2	59.0	68	145.5	84.0	18	188.8	109.0	68	232.1	134.0
19	16.5	09.5	69	59,8	34.5	19	103 1	59 5	69	146 4	84.5	19	189 7	109.5	69	233.0	134 5
20	17.3	10.0	70	60.6	35.0	20	103 9	60.0	70	147 2	85 0	20	190.5	110.0	70	233.8	135 0
21	18.2	10.5	71	61.5	35,5	121	104.8	60.5	171	148.1	85.5	221	191 4	110 5	271	234.7	135 5
22	19.1	11,0	72	62.4	36.0	22	105.7	61 0	72	149.0	86 0	22	192.3	111 0	72	235.6	136.0
23	19.9	11.5	73	63 2	36.5	23	106.5	61.5	73	149 8	86.5	23	193.1	111 5	73	236,4	136.5
24	20.8	12.0	74	64,1	37.0	24	107 4	62.0	74	150.7	87.0	24	194 0	112.0	74	237.3	137 0
25	21.7	12.5	75	65.0	37.5	25	108.3	62.5	75	151.6	87 5	25	194.9	112.5	75	238.2	137.5
26	22.5	13.0	76	65.8	38.0	126	109.1	63,0	176	152 4	88.0	226	195 7	113.0	276	239.0	138 0
27	23.4	13.5	77	66,7	38.5	27	110.0	63.5	77	153.3	88.5	27	196,6	113.5	77	239 9	138 5
28	24.2	14,0	78	67.5	39.0	28	110 8	64,0	78	154 1	89 0	28	197 4	114.0	78	240.7	139 0
29	25.1	14.5	79	68,4	39.5	29	111.7	64,5	79	155.0	89.5	29	198 3	114.5	79	241 6	139 5
30	26.0	15 0	80	69.3	40.0	30	112.6	65 0	80	155.9	90.0	30	199 2	115.0	80	242,5	140.0
31	26.8	15.5	81	70.1	40.5	131	113.4	65.5	181	156.7	90.5	231	200.0	115 5	281	243.3	140 5
32	27.7	16.0	82	71.0	41,0	32	114.3	66.0	82	157.6	91.0	32	200.9	116.0	82	244 2	141 0
33	28.6	16.5	83	71.9	41.5	33	115 2	66.5	83	158.5	91.5	33	201.8	116.5	83	245.1	141.5
34	29.4	17.0	84	72.7	42.0	34	116 0	67,0	84	159.3	92.0	34	202.6	117.0	84	245 9	142.0
35	30.3	17.5	85	73.6	42.5	35	116.9	67 5	85	160.2	92.5	35	203.5	117.5	85	246 8	142.5
36	31,2	18.0	86	74.5	43.0	136	117.8	68.0	186	161.1	93.0	236	204.4	118.0	286	247.7	143.0
37	32.0	18.5	87	75.3	43.5	37	118.6	68 5	87	161,9	93.5	37	205.2	118.5	87	248.5	143.5
38	32.9	19.0	88	76.2	44.0	38	119.5	69 0	88	162.8	94 0	38	206,1	119.0	88	249 4	144.0
39	33.8	19.5	89	77.1	44.5	39	120,4	69 5	89	163 7	94.5	39	207.0	119.5	89	250.3	144,5
40	34.6	20.0	90	77.9	45.0	40	121.2	70.0	90	164.5	95 0	40	207.8	120 0	90	251.1	145 0
41	35.5	20.5	91	78 8	45 5	141	122.1	70.5	191	165 4	95.5	241	208.7	120.5	291	252.0	145,5
42	36.4	21.0	92	79.7	46,0	42	123 0	71.0	92	166.3	96.0	42	209 6	121.0	92	252.9	146.0
43	37.2	21 5	93	80.5	46.5	43	123.8	71.5	93	167 1	96.5	43	210.4	121.5	93	253,7	146.5
44	38.1	22.0	94	81.4	47.0	44	124.7	72.0	94	168.0	97 0	44	211.3	122,0	94	254.6	147.0
45	39.0	22 5	95	82,3	47.5	45	125 6	72 5	95	168.9	97.5	45	212.2	122 5	95	255.5	147.5
46	39.8	23.0	96	83.1	48.0	146	126.4	73.0	196	169 7	98,0	246	213 0	123.0	296	256.3	148 0
47	40.7	23.5	97	84 0	48.5	47	127.3	73.5	97	170.6	98.5	47	213.9	123.5	97	257,2	148 5
48	41.5	24.0	98	84 9	49,0	48	128.2	74.0	98	171.5	99.0	48	214 8	124.0	98	258,1	149.0
49	42.4	24 5	99	85.7	49.5	49	129 0	74,5	99	172.3	99.5	49	215.6	124.5	99	258.9	149.5
50	43.3	25.0	100	86.6	50.0	150	129 9	75.0	200	173 2	100.0	250	216.5	125.0	100	259.8	150 0
Dif	Dep	Lat	Dif	Dep	Lat	Dif	Dep	Lat	Dif	Dep	La	Dif	Dep	L	Dif	Dep	Lat

D ſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat.	Dep	Diſt	Lat	Dep
1	00.9	00,5	51	43.7	26.3	101	86.6	52.0	151	129.4	77.8	201	172.3	103.5	251	215.1	129.3
2	01.7	01.0	52	44.6	26.8	02	87.4	52.5	52	130.3	78.3	02	173.1	104.0	52	216.0	129.8
3	02.6	01.5	53	45.4	27.3	03	88.3	53.0	53	131.1	78.8	03	174.0	104.5	53	216.8	130.3
4	03.4	02.1	54	46.3	27.8	04	89,1	53.6	54	132.0	79.3	04	174.8	105.1	54	217.7	130.8
5	04.3	02.6	55	47.1	28.3	05	90.0	54.1	55	132.8	79.8	05	175.7	105.6	55	218.5	131.3
6	05.1	03.1	56	48.0	28.8	106	90.8	54.6	156	133.7	80.3	206	176.5	106.1	256	219.4	131.8
7	06.0	03.6	57	48,8	29.4	07	91.7	55.1	57	134.5	80.9	07	177.4	106.6	57	220.2	132.4
8	06.9	04.1	58	49,7	29.9	08	92.6	55.6	58	135.4	81.4	08	178.3	107.1	58	221.1	132.9
9	07.7	04.6	59	50.6	30.4	09	93.4	56.1	59	136.3	81.9	09	179.1	107.6	59	222.0	133.4
10	08.6	05.2	60	51.4	30.9	10	94.3	56.7	60	137.1	82.4	10	180.0	108,2	60	222.8	133.9
11	09.4	05.7	61	52.3	31.4	111	95.1	57.2	161	138.0	82.9	211	180.8	108.7	261	223.7	134.4
12	10,3	06.2	62	53.1	31.9	12	96.0	57.7	62	138.8	83.4	12	181.7	109.2	62	224.5	134.9
13	11.1	06.7	63	54.0	32.4	13	96.8	58.2	63	139.7	83.9	13	182.5	109.7	63	225.4	135.4
14	12.0	07.2	64	54.8	33.0	14	97.7	58.7	64	140.5	84.5	14	183.4	110.2	64	226.2	136.0
15	12.9	07.7	65	55.7	33.5	15	98.6	59.2	65	141.4	85.0	15	184.3	110.7	65	227.1	136.5
16	13.7	08.2	66	56.6	34.0	116	99.4	59.7	166	142.3	85.5	216	185.1	111.2	266	228.0	137.0
17	14.6	08,8	67	57.4	34,5	17	100.3	60.3	67	143.1	86.0	17	186.0	111.8	67	228.8	137.5
18	15.4	09,3	68	58.3	35.0	18	101.1	60,8	68	144.0	86.5	18	186.8	112.3	68	229.7	138.0
19	16.3	09.8	69	59.1	35.5	19	102.0	61.3	69	144.8	87.0	19	187.7	112.8	69	230.5	138.5
20	17.1	10.3	70	60.0	36.1	20	102,8	61.8	70	145.7	87.6	20	188.5	113.3	70	231.4	139.1
21	18.0	10.8	71	60.8	36,6	121	103.7	62.3	171	146.5	88,1	221	189.4	113.8	271	232.2	139.6
22	18.9	11.3	72	61.7	37.1	22	104.6	62.8	72	147.4	88.6	22	190.3	114.3	72	233.1	140.1
23	19.7	11.8	73	62.6	37.6	23	105.4	63.3	73	148.3	89.1	23	191.1	114.8	73	234.0	140.6
24	20.6	12.4	74	63.4	38.1	24	106.3	63.9	74	149.1	89.6	24	192.0	115.4	74	234.8	141.1
25	21.4	12.9	75	64.3	38.6	25	107.1	64.4	75	150.0	90.1	25	192.8	115.9	75	235.7	141.6
26	22.3	13.4	76	65.1	39.1	126	108.0	64.9	176	150.8	90.6	226	193.7	116.4	276	236.5	142.1
27	23.1	13.9	77	66.0	39.7	27	108.8	65.4	77	151.7	91.2	27	194.5	116.9	77	237.4	142.7
28	24.0	14.4	78	66.8	40.2	28	109.7	65.9	78	152.5	91.7	28	195.4	117.4	78	238.2	143.2
29	24.9	14,9	79	67.7	40.7	29	110.6	66.4	79	153.4	92.2	29	196.3	117.9	79	239.1	143.7
30	25.7	15,5	80	68,6	41.2	30	111.4	67.0	80	154.3	92.7	30	197.1	118.5	80	240.0	144.2
31	26,6	16.0	81	69.4	41.7	131	112.3	67.5	181	155.1	93.2	231	198.0	119.0	281	240.8	144.7
32	27.4	16,5	82	70.3	42.2	32	113.1	68.0	82	156.0	93.7	32	198.8	119.5	82	241.7	145.2
33	28.3	17.0	83	71.1	42.7	33	114.0	68.5	83	156.8	94.2	33	199.7	120.0	83	242.5	145.7
34	29.1	17.5	84	72.0	43.3	34	114.8	69.0	84	157.7	94.8	34	200.5	120.5	84	243.4	146.3
35	30.0	18.0	85	72.8	43.8	35	115.7	69.5	85	158.5	95.3	35	201.4	121.0	85	244.2	146,8
36	30.9	18.5	86	73.7	44.3	136	116.6	70.0	186	159.4	95.8	236	202.3	121.5	286	245.1	147.3
37	31.7	19,1	87	74.6	44.8	37	117.4	70.6	87	160.3	96.3	37	203.1	122.1	87	246.0	147,8
38	32.6	19.6	88	75.4	45.3	38	118.3	71.1	88	161.1	96.8	38	204.0	122.6	88	246.8	148.3
39	33.4	20.1	89	76.3	45.8	39	119.1	71.6	89	162.0	97.3	39	204.8	123.1	89	247.7	148.8
40	34.3	20.6	90	77.1	46.4	40	120.0	72.1	90	162.8	97.9	40	205.7	123.6	90	248.5	149.4
41	35.1	21.1	91	78.0	46.9	141	120.8	72.6	191	163.7	98.4	241	206.5	124.1	291	249.4	149.9
42	36.0	21.6	92	78.8	47.4	42	121.7	33,1	92	164.5	98.9	42	207.4	124.6	92	250.2	150.4
43	26.9	22.1	93	79.7	47,9	43	122.6	73.6	93	165.4	99.4	43	208.3	125.1	93	251.1	150.9
44	37.7	22.6	94	80.6	48,4	44	123.4	74.2	94	166.3	99,9	44	209.1	125.6	94	252.0	151.4
45	38.6	23,2	95	81.4	48.9	45	124.3	74.7	95	167.1	100.4	45	210.0	126.2	95	252.8	151.9
46	39.4	23.7	96	82.3	49.4	146	125.1	75.2	196	168.0	100.9	246	210.8	126.7	296	253.7	152.4
47	40.3	24.2	97	83,1	50.0	47	126.0	75.7	97	168.8	101.5	47	211.7	127.2	97	254.5	153.0
48	41.1	24,7	98	84.0	50.5	48	126.8	76.2	98	169.7	102.0	48	212.5	127.7	98	255.4	153.5
49	42.0	25.2	99	84.8	51.0	49	127.7	76.7	99	170.5	102.5	49	213.4	128.2	99	256.2	154.0
50	42.9	25.8	100	85.7	51.5	150	128.6	77.3	200	171.4	103.0	250	214.3	128.9	300	257.1	154.5
Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	La.	Diſt	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00.5	51	43.2	27.0	101	85.6	53.5	151	128.0	80.0	201	170.4	106.5	251	212.8	133.0
2	01.7	01.1	52	44.1	27.6	02	86.5	54.1	52	128.9	80.6	02	171.3	107.1	52	213.7	133.6
3	02.5	01.6	53	44.9	28.1	03	87.3	54.6	53	129.7	81.1	03	172.1	107.6	53	214.5	134.3
4	03.4	02.1	54	45.8	28.6	04	88.2	55.1	54	130.6	81.6	04	173.0	108.1	54	215.4	134.6
5	04.2	02.7	55	46.6	29.2	05	89.0	55.7	55	131.4	82.2	05	173.8	108.7	55	216.2	135.2
6	05.1	03.2	56	47.5	29.7	106	89.9	56.2	156	132.3	82.7	206	174.7	109.2	256	217.1	135.7
7	05.9	03.7	57	48.3	30.2	07	90.7	56.7	57	133.1	83.2	07	175.5	109.7	57	217.9	136.2
8	06.8	04.2	58	49.2	30.7	08	91.6	57.2	58	134.0	83.7	08	176.4	110.2	58	218.8	136.7
9	07.6	04.8	59	50.0	31.3	09	92.4	57.8	59	134.8	84.3	09	177.2	110.8	59	219.6	137.3
10	08.5	05.3	60	50.9	31.8	10	93.3	58.3	60	135.7	84.8	10	178.1	111.3	60	220.5	137.8
11	09.3	05.8	61	51.7	32.3	111	94.1	58.8	161	136.5	85.3	211	178.9	111.8	261	221.3	138.3
12	10.2	06.4	62	52.6	32.9	12	95.0	59.4	62	137.4	85.9	12	179.8	112.4	62	222.2	138.9
13	11.0	06.9	63	53.4	33.4	13	95.8	59.9	63	138.2	86.4	13	180.6	112.9	63	223.0	139.4
14	11.9	07.4	64	54.3	33.9	14	96.7	60.4	64	139.1	86.9	14	181.5	113.4	64	223.9	139.9
15	12.7	08.0	65	55.1	34.5	15	97.5	61.0	65	139.9	87.5	15	182.3	114.0	65	224.7	140.5
16	13.6	08.5	66	56.0	35.0	116	98.4	61.5	166	140.8	88.0	216	183.2	114.5	266	225.6	141.0
17	14.4	09.0	67	56.8	35.5	17	99.2	62.0	67	141.6	88.5	17	184.0	115.0	67	226.4	141.5
18	15.3	09.5	68	57.7	36.0	18	100.1	62.5	68	142.5	89.0	18	184.9	115.6	68	227.3	142.0
19	16.1	10.1	69	58.5	36.6	19	100.9	63.1	69	143.3	89.6	19	185.7	116.1	69	228.1	142.6
20	17.0	10.6	70	59.4	37.1	20	101.8	63.6	70	144.2	90.1	20	186.6	116.6	70	229.0	143.1
21	17.8	11.1	71	60.2	37.6	121	102.6	64.1	171	145.0	90.6	221	187.4	117.1	271	229.8	143.6
22	18.7	11.7	72	61.1	38.2	22	103.5	64.7	72	145.9	91.2	22	188.3	117.7	72	230.7	144.2
23	19.5	12.2	73	61.9	38.7	23	104.3	65.2	73	146.7	91.7	23	189.1	118.2	73	231.5	144.7
24	20.4	12.7	74	62.8	39.2	24	105.2	65.7	74	147.6	92.2	24	190.0	118.7	74	232.4	145.2
25	21.2	13.3	75	63.6	39.8	25	106.0	66.3	75	148.4	92.8	25	190.8	119.3	75	233.2	145.8
26	22.0	13.8	76	64.4	40.3	126	106.8	66.8	176	149.2	93.3	226	191.6	119.8	276	234.0	146.3
27	22.9	14.3	77	65.3	40.8	27	107.7	67.3	77	150.1	93.8	27	192.5	120.3	77	234.9	146.8
28	23.7	14.8	78	66.1	41.3	28	108.5	67.8	78	150.9	94.3	28	193.3	120.8	78	235.7	147.3
29	24.6	15.4	79	67.0	41.9	29	109.4	68.4	79	151.8	94.9	29	194.2	121.4	79	236.6	147.9
30	25.4	15.9	80	67.8	42.4	30	110.2	68.9	80	152.6	95.4	30	195.0	121.9	80	237.4	148.4
31	26.3	16.4	81	68.7	42.9	131	111.1	69.4	181	153.5	95.9	231	195.9	122.4	281	238.3	148.9
32	27.1	17.0	82	69.5	43.5	32	111.9	70.0	82	154.3	96.5	32	196.7	123.0	82	239.1	149.5
33	28.0	17.5	83	70.4	44.0	33	112.8	70.5	83	155.2	97.0	33	197.6	123.5	83	240.0	150.0
34	28.8	18.0	84	71.2	44.5	34	113.6	71.0	84	156.0	97.5	34	198.4	124.0	84	240.8	150.5
35	29.7	18.6	85	72.1	45.1	35	114.5	71.6	85	156.9	98.1	35	199.3	124.6	85	241.7	151.1
36	30.5	19.1	86	72.9	45.6	136	115.3	72.1	186	157.7	98.6	236	200.1	125.1	286	242.5	151.6
37	31.4	19.6	87	73.8	46.1	37	116.2	72.6	87	158.6	99.1	37	201.0	125.6	87	243.4	152.1
38	32.2	20.1	88	74.6	46.6	38	117.0	73.1	88	159.4	99.6	38	201.8	126.1	88	244.2	152.6
39	33.1	20.7	89	75.5	47.2	39	117.9	73.7	89	160.3	100.2	39	202.7	126.7	89	245.1	153.1
40	33.9	21.2	90	76.3	47.7	40	118.7	74.2	90	161.1	100.7	40	203.5	127.2	90	245.9	153.7
41	34.8	21.7	91	77.2	48.2	141	119.6	74.7	191	162.0	101.2	241	204.4	127.7	291	246.8	154.2
42	35.6	22.3	92	78.0	48.8	42	120.4	75.3	92	162.8	101.8	42	205.2	128.3	92	247.6	154.8
43	36.5	22.8	93	78.9	49.3	43	121.3	75.8	93	163.7	102.3	43	206.1	128.8	93	248.5	155.3
44	37.3	23.3	94	79.7	49.8	44	122.1	76.3	94	164.5	102.8	44	206.9	129.3	94	249.3	155.8
45	38.2	23.9	95	80.6	50.4	45	123.0	76.9	95	165.4	103.4	45	207.8	129.9	95	250.2	156.4
46	39.0	24.4	96	81.4	50.9	146	123.8	77.4	196	166.2	103.9	246	208.6	130.4	296	251.0	156.9
47	39.9	24.9	97	82.3	51.4	47	124.7	77.9	97	167.1	104.4	47	209.5	130.9	97	251.9	157.4
48	40.7	25.4	98	83.1	51.9	48	125.5	78.4	98	167.9	104.9	48	210.3	131.4	98	252.7	157.9
49	41.6	26.0	99	84.0	52.5	49	126.4	79.0	99	168.8	105.5	49	211.2	131.0	99	253.6	158.5
50	42.4	26.5	100	84.8	53.0	150	127.2	79.5	200	169.6	106.0	250	212.0	132.5	300	254.4	159.0
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat.	Dep	Dift	Lat	Dep
1	00.8	00,5	51	42.8	27.8	101	84.7	55.0	151	126.6	81.2	201	168.6	109.5	251	210.5	136.7
2	01.7	01.1	52	43.6	28.3	02	85.5	55.5	52	127.5	82.8	02	169.4	110.0	52	211.3	137.2
3	02.5	01.6	53	44.4	28.9	03	86.4	56.1	53	128.3	83.3	03	170.2	110.6	53	212.2	137.8
4	03.4	02.2	54	45.3	29.4	04	87.2	56.6	54	129.1	83.9	04	171.1	111.1	54	213.0	138.3
5	04.2	02.7	55	46.1	30 0	05	88 1	57.2	55	130 0	84.4	05	171.9	111.6	55	213.8	138.9
6	05.0	03 3	56	47.0	30.5	106	88,9	57.7	156	130.8	85,0	206	172.8	112.2	256	214.7	139 4
7	05.9	03.8	57	47.8	31.0	07	89.7	58.3	57	131.7	85.5	07	173,6	112.7	57	215.5	140 0
8	06.7	04.4	58	48.6	31.6	08	90.6	58.8	58	132.5	86.0	08	174.4	113.3	58	216.4	140.5
9	07.5	04.9	59	49.5	32.1	09	91.4	59.4	59	133.3	86.6	09	175.3	113.8	59	217.2	141.1
10	08.4	05.4	60	50.3	32.7	10	92.2	59.9	60	134.2	87.1	10	176.1	114.4	60	218.0	141.6
11	09.2	06.0	61	51.2	33 2	111	93.1	60.5	161	135.0	87.7	211	176 9	114.9	261	218.9	142.1
12	10.1	06.5	62	52.0	33.8	12	93.9	61.0	62	135.9	88,2	12	177.8	115.5	62	219.7	142.7
13	10.9	07.1	63	52.8	34.3	13	94 8	61.5	63	136.7	88.8	13	178.6	116.0	63	220.6	143,2
14	11.7	07.6	64	53.7	34.9	14	95.6	62.1	64	137.5	89 3	14	179.5	116.5	64	221.4	143.8
15	12.6	08.2	65	54.5	35.4	15	96.4	62.6	65	138.4	89.9	15	180.3	117.1	65	222.2	144.3
16	13.4	08,7	66	55.3	35.9	116	97.3	63.2	166	139.2	90.4	216	181.1	117.6	266	223.1	144.9
17	14.3	09,3	67	56.2	36.5	17	98.1	63.7	67	140.0	90.9	17	182.0	118.2	67	223.9	145.4
18	15.1	09.8	68	57.0	37.0	18	99.0	64,3	68	140.9	91,5	18	182.8	118.7	68	224.7	146.0
19	15.9	10,3	69	57.9	37.6	19	99,8	64.8	69	141.7	92,0	19	183.7	119.3	69	225.6	146,5
20	16.8	10 9	70	58.7	38.1	20	100.6	65.4	70	142.6	92.6	20	184.5	119.8	70	226 4	147.0
21	17.6	11.4	71	59.5	38.7	121	101.5	65.9	171	143.4	93.1	221	185.3	120.4	271	227.3	147,6
22	18.4	12.0	72	60.4	39.2	22	102.3	66.4	72	144.2	93.7	22	186.2	120.9	72	228.1	148'1
23	19.3	12.5	73	61.2	39.8	23	103.1	67.0	73	145.1	94.2	23	187.0	121.4	73	228.9	148,7
24	20.1	13.1	74	62.1	40.3	24	104.0	67.5	74	145,9	94.8	24	187.8	122.0	74	229.8	149.2
25	21.0	13.6	75	62.9	40.8	25	104.8	68.1	75	146.8	95.3	25	188.7	122.5	75	230.6	149.8
26	21.8	14.2	76	63.7	41.4	126	105.7	68,6	176	147.6	95.8	226	189.5	123.1	276	231.5	150.3
27	22.6	14,7	77	64.6	41.9	27	106.5	69.2	77	148.4	96.4	27	190.4	123.6	77	232.3	150.9
28	23.5	15,2	78	65.4	42.5	28	107.3	69,7	78	149.3	96.5	28	191.2	124 2	78	233.1	151.4
29	24.3	15.8	79	66.2	43.0	29	108.2	70.3	79	150.1	97,5	29	192.0	124.7	79	234.0	151.9
30	25.2	16.3	80	67.1	43.6	30	109 0	70.8	80	150.9	98.0	30	192.9	125.3	80	234.8	152.5
31	26.0	16,9	81	67.9	44.1	131	109.9	71.3	181	151,8	98.6	231	193.7	125.8	281	235.6	153.0
32	26.8	17.4	82	68.8	44.7	32	110.7	71.9	82	152.6	99.1	32	194.6	126.3	82	236.5	153.6
33	27.7	18.0	83	69.6	45.2	33	111.5	72.4	83	153.5	99,7	33	195.4	126.9	83	237.3	154.1
34	28.5	18.5	84	70.4	45.7	34	112.4	33,0	84	154.3	100.2	34	196.2	127.4	84	238.2	154.7
35	29.4	19,1	85	71.3	46.3	35	113.2	73.5	85	155.1	100.8	35	197.1	128.0	85	239.0	155.2
36	30.2	19.6	86	72,1	46.8	136	114.0	74.1	186	156 0	101.3	236	197.9	128.5	286	239.8	155.8
37	31.0	20.2	87	73.0	47.4	37	114.9	74.6	87	156.8	101.8	37	198.7	129.1	87	240.7	156.3
38	31.9	20.7	88	73.8	47,9	38	115.7	75.2	88	157,7	102.4	38	199.6	129.6	88	241.5	156.8
39	32.7	21.2	89	74.6	48.5	39	116.6	75.7	89	158.5	102.9	39	200.4	130.2	89	242.4	157.4
40	33.5	21.8	90	75.5	49.0	40	117.4	76.2	90	159.3	103.5	40	201.3	130.7	90	243.2	157.9
41	34.4	22.3	91	76.3	49.6	141	118.2	76.8	191	160.2	104.0	241	202.1	131.2	291	244.0	158.5
42	35.2	22.9	92	77.2	50.1	42	119.1	77.3	92	161.0	104.6	42	202.9	131.8	92	244.9	159.0
43	36.1	23,4	93	78.0	50.6	43	119.9	77.9	93	161.8	105.1	43	203.8	132.3	93	245.7	159.6
44	36.9	24.0	94	78.8	51.2	44	120.8	78.4	94	162.7	105.7	44	204.6	132.9	94	246.5	160.1
45	37.7	24,5	95	79.7	51.7	45	121.6	79.0	95	163.5	106.2	45	205.5	133.4	95	247.4	160.7
46	38.6	25.1	96	80.5	52.3	146	122.4	79.5	196	164.4	106,7	246	206.3	134 0	296	248.2	161.2
47	39.4	25.6	97	81.3	52.8	47	123.3	80.1	97	165.2	107.3	47	207.1	134.5	97	249.1	161.7
48	40.3	26.1	98	82.2	53.4	48	124.1	80.6	98	166.0	107.8	48	208.0	135.1	98	249.9	162.3
49	41.1	26.7	99	83.0	53.9	49	125.0	81.1	99	166.9	108.4	49	208.8	135.6	99	250.7	162.8
50	41.9	27.2	100	83.9	54.5	150	125.8	81.7	200	167.7	108.9	250	209.7	136.2	300	251.6	163.4
Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00.6	51	42.3	28.5	101	83.7	56.5	151	125.2	84.4	201	166.6	112.4	251	208.1	140.4
2	01.7	01.1	52	43.1	29.1	02	84.6	57.0	52	126.0	85.0	02	167.5	113.0	52	208.9	140.9
3	02.5	01.7	53	43.9	29.6	03	85.4	57.0	53	126.8	85.6	03	168.3	113.5	53	209.7	141.5
4	03.3	02.2	54	44.8	30.2	04	86.2	58.2	54	127.7	86.1	04	169.1	114.1	54	210.6	142.0
5	04.1	02.8	55	45.6	30.8	05	87.0	58.7	55	128.5	86.7	05	169.9	114.6	55	211.4	142.6
6	05.0	03.4	56	46.4	31.3	106	87.9	59.3	156	129.3	87.2	206	170.8	115.2	256	212.2	143.2
7	05.8	03.9	57	47.3	31.9	07	88.7	59.8	57	130.2	87.8	07	171.6	115.8	57	213.1	143.7
8	06.6	04.5	58	48.1	32.4	08	89.5	60.4	58	131.0	88.4	08	172.4	116.3	58	213.9	144.3
9	07.5	05.0	59	48.9	33.0	09	90.4	61.0	59	131.8	88.9	09	173.3	116.9	59	214.7	144.8
10	08.3	05.6	60	49.7	33.6	10	91.2	61.5	60	132.6	89.5	10	174.1	117.4	60	215.5	145.4
11	09.1	06.2	61	50.6	34.1	111	92.0	62.1	161	133.5	90.0	211	174.9	118.0	261	216.4	146.0
12	09.9	06.7	62	51.4	34.7	12	92.8	62.6	62	134.3	90.6	12	175.7	118.6	62	217.2	146.5
13	10.8	07.3	63	52.2	35.2	13	93.7	63.2	63	135.1	91.1	13	176.6	119.1	63	218.0	147.1
14	11.6	07.8	64	53.1	35.8	14	94.5	63.7	64	136.0	91.7	14	177.4	119.7	64	218.9	147.6
15	12.4	08.4	65	53.9	36.3	15	95.3	64.3	65	136.8	92.3	15	178.2	120.2	65	219.7	148.2
16	13.3	08.9	66	54.7	36.9	116	96.2	64.9	166	137.6	92.8	216	179.1	120.8	266	220.5	148.7
17	14.1	09.5	67	55.5	37.5	17	97.0	65.4	67	138.4	93.4	17	179.9	121.3	67	221.3	149.3
18	14.9	10.1	68	56.4	38.0	18	97.8	66.0	68	139.3	93.9	18	180.7	121.9	68	222.2	149.9
19	15.8	10.6	69	57.2	38.6	19	98.7	66.5	69	140.1	94.5	19	181.6	122.5	69	223.0	150.4
20	16.6	11.2	70	58.0	39.1	20	99.5	67.1	70	140.9	95.1	20	182.4	123.0	70	223.8	151.0
21	17.4	11.7	71	58.9	39.7	121	100.3	67.7	171	141.8	95.6	221	183.2	123.6	271	224.7	151.5
22	18.2	12.3	72	59.7	40.3	22	101.1	68.2	72	142.6	96.2	22	184.0	124.1	72	225.5	152.1
23	19.1	12.9	73	60.5	40.8	23	102.0	68.8	73	143.4	96.7	23	184.9	124.7	73	226.3	152.7
24	19.9	13.4	74	61.3	41.4	24	102.8	69.3	74	144.2	97.3	24	185.7	125.3	74	227.1	153.2
25	20.7	14.0	75	62.2	41.9	25	103.6	69.9	75	145.1	97.9	25	186.5	125.8	75	228.0	153.8
26	21.6	14.5	76	63.0	42.5	126	104.5	70.5	176	145.9	98.4	226	187.4	126.4	276	228.8	154.3
27	22.4	15.1	77	63.8	43.1	27	105.3	71.0	77	146.7	99.0	27	188.2	126.9	77	229.6	154.9
28	23.2	15.7	78	64.7	43.6	28	106.1	71.6	78	147.6	99.5	28	189.0	127.5	78	230.5	155.5
29	24.0	16.2	79	65.5	44.2	29	106.9	72.1	79	148.4	100.1	29	189.8	128.1	79	231.3	156.0
30	24.9	16.8	80	66.3	44.7	30	107.8	72.7	80	149.2	100.7	30	190.7	128.6	80	232.1	156.6
31	25.7	17.3	81	67.1	45.3	131	108.6	73.3	181	150.0	101.2	231	191.5	129.2	281	232.9	157.1
32	26.5	17.9	82	68.0	45.9	32	109.4	73.8	82	150.9	101.8	32	192.3	129.7	82	233.8	157.7
33	27.4	18.5	83	68.8	46.4	33	110.3	74.4	83	151.7	102.3	33	193.2	130.3	83	234.6	158.3
34	28.1	19.0	84	69.6	47.0	34	111.1	74.9	84	152.5	102.9	34	194.0	130.9	84	235.4	158.8
35	29.0	19.6	85	70.5	47.5	35	111.9	75.5	85	153.4	103.5	35	194.8	131.4	85	236.3	159.4
36	29.8	20.1	86	71.3	48.1	136	112.7	76.1	186	154.2	104.0	236	195.6	132.0	286	237.1	159.9
37	30.7	20.7	87	72.1	48.7	37	113.6	76.6	87	155.0	104.6	37	196.5	132.5	87	237.9	160.5
38	31.5	21.2	88	73.0	49.2	38	114.4	77.2	88	155.9	105.1	38	197.3	133.1	88	238.8	161.0
39	32.3	21.8	89	73.8	49.8	39	115.2	77.7	89	156.7	105.7	39	198.1	133.6	89	239.6	161.6
40	33.2	22.4	90	74.6	50.3	40	116.1	78.3	90	157.5	106.2	40	199.0	134.2	90	240.4	162.2
41	34.0	22.9	91	75.4	50.9	141	116.9	78.8	191	158.3	106.8	241	199.8	134.8	291	241.2	162.7
42	34.8	23.5	92	76.3	51.4	42	117.7	79.4	92	159.2	107.4	42	200.6	135.3	92	242.1	163.3
43	35.6	24.0	93	77.1	52.0	43	118.5	80.0	93	160.0	107.9	43	201.4	135.9	93	242.9	163.8
44	36.5	24.6	94	77.9	52.6	44	119.4	80.5	94	160.8	108.5	44	202.3	136.4	94	243.7	164.4
45	37.3	25.2	95	78.8	53.1	45	120.2	81.1	95	161.7	109.0	45	203.1	137.0	95	244.6	165.0
46	38.1	25.7	96	79.6	53.7	146	121.0	81.6	196	162.5	109.6	246	203.9	137.6	296	245.4	165.5
47	39.0	26.3	97	80.4	54.2	47	121.9	82.2	97	163.3	110.2	47	204.8	138.1	97	246.2	166.1
48	39.8	26.8	98	81.2	54.8	48	122.7	82.8	98	164.1	110.7	48	205.6	138.7	98	247.0	166.6
49	40.6	27.4	99	82.1	55.4	49	123.5	83.3	99	165.0	111.3	49	206.4	139.2	99	247.9	167.2
50	41.5	28.0	100	82.9	55.9	150	124.4	83.9	200	165.8	111.8	250	207.3	139.8	300	248.7	167.8
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep
1	00.8	00.6	51	41.8	29.2	101	82.7	57.9	151	123.7	86.6	201	164.6	115.3	251	205.6	143.9
2	01.6	01.1	52	42.6	29.8	02	83.5	58.5	52	124.5	87.2	02	165.4	115.8	52	206.4	144.5
3	02.5	01.7	53	43.4	30.4	03	84.4	59.1	53	125.3	87.7	03	166.3	116.4	53	207.2	145.1
4	03.3	02.3	54	44.2	31.0	04	85.2	59.6	54	126.1	88.3	04	167.1	117.0	54	208.0	145.7
5	04.1	02.9	55	45.0	31.5	05	86.0	60.2	55	126.9	88.9	05	167.9	117.6	55	208.8	146.2
6	04.9	03.4	56	45.9	32.1	106	86.8	60.8	156	127.8	89.5	206	168.7	118.1	256	209.6	146.8
7	05.7	04.0	57	46.7	32.7	07	87.6	61.4	57	128.6	90.0	07	169.5	118.7	57	210.5	147.4
8	06.6	04.6	58	47.5	33.3	08	88.5	61.9	58	129.4	90.6	08	170.3	119.3	58	211.3	148.0
9	07.4	05.2	59	48.3	33.8	09	89.3	62.5	59	130.2	91.2	09	171.2	119.9	59	212.1	148.5
10	08.2	05.7	60	49.1	34.4	10	90.1	63.1	60	131.0	91.8	10	172.0	120.4	60	212.9	149.1
11	09.0	06.3	61	50.0	35.0	111	90.9	63.7	161	131.9	92.3	211	172.8	121.0	261	213.8	149.7
12	09.8	06.9	62	50.8	35.6	12	91.7	64.2	62	132.7	92.9	12	173.6	121.6	62	214.6	150.3
13	10.6	07.5	63	51.6	36.1	13	92.5	64.8	63	133.5	93.5	13	174.4	122.2	63	215.4	150.8
14	11.5	08.0	64	52.4	36.7	14	93.4	65.4	64	134.3	94.1	14	175.3	122.7	64	216.2	151.4
15	12.3	08.6	65	53.2	37.3	15	94.2	66.0	65	135.1	94.6	15	176.1	123.3	65	217.0	152.0
16	13.1	09.2	66	54.1	37.9	116	95.0	66.5	166	136.0	95.2	216	176.9	123.9	266	217.8	152.6
17	13.9	09.7	67	54.9	38.4	17	95.8	67.1	67	136.8	95.8	17	177.7	124.4	67	218.7	153.1
18	14.7	10.3	68	55.7	39.0	18	96.6	67.7	68	137.6	96.3	18	178.5	125.0	68	219.5	153.7
19	15.6	10.9	69	56.5	39.6	19	97.5	68.2	69	138.4	96.9	19	179.4	125.6	69	220.3	154.3
20	16.4	11.5	70	57.3	40.1	20	98.3	68.8	70	139.2	97.5	20	180.2	126.2	70	221.1	154.8
21	17.2	12.0	71	58.1	40.7	121	99.1	69.4	171	140.0	98.1	221	181.0	126.7	271	221.9	155.4
22	18.0	12.6	72	59.0	41.3	22	99.9	70.0	72	140.9	98.6	22	181.8	127.3	72	222.8	156.0
23	18.8	13.2	73	59.8	41.9	23	100.7	70.5	73	141.7	99.2	23	182.6	127.9	73	223.6	156.6
24	19.6	13.8	74	60.6	42.4	24	101.6	71.1	74	142.5	99.8	24	183.5	128.5	74	224.4	157.1
25	20.5	14.3	75	61.4	43.0	25	102.4	71.7	75	143.3	100.4	25	184.3	129.0	75	225.2	157.7
26	21.3	14.9	76	62.2	43.6	126	103.2	72.3	176	144.1	100.9	226	185.1	129.6	276	226.0	158.3
27	22.1	15.5	77	63.1	44.2	27	104.0	72.8	77	145.0	101.5	27	185.9	130.2	77	226.9	158.9
28	22.9	16.1	78	63.9	44.7	28	104.8	73.4	78	145.8	102.1	28	186.7	130.8	78	227.7	159.4
29	23.8	16.6	79	64.7	45.3	29	105.6	74.0	79	146.6	102.7	29	187.5	131.3	79	228.5	160.0
30	24.6	17.2	80	65.5	45.9	30	106.5	74.6	80	247.4	103.2	30	188.4	131.9	80	229.3	160.6
31	25.4	17.8	81	66.3	46.5	131	107.3	75.1	181	148.2	103.8	231	189.2	132.5	281	230.1	161.2
32	26.2	18.4	82	67.2	47.0	32	108.1	75.7	82	149.1	104.4	32	190.0	133.1	82	231.0	161.7
33	27.0	18.9	83	68.0	47.6	33	108.9	76.3	83	149.9	105.0	33	190.8	133.6	83	231.8	162.3
34	27.8	19.5	84	68.8	48.2	34	109.7	76.8	84	150.7	105.5	34	191.6	134.2	84	232.6	162.9
35	28.7	20.1	85	69.6	48.7	35	110.6	77.4	85	151.5	106.1	35	192.5	134.8	85	233.4	163.4
36	29.5	20.6	86	70.4	49.3	136	111.4	78.0	186	152.3	106.7	236	193.3	135.3	286	234.2	164.0
37	30.3	21.2	87	71.3	49.9	37	112.2	78.6	87	153.1	107.2	37	194.1	135.9	87	235.0	164.6
38	31.1	21.8	88	72.1	50.5	38	113.0	79.1	88	154.0	107.8	38	194.9	136.5	88	235.9	165.2
39	31.9	22.4	89	72.9	51.0	39	113.8	79.7	89	154.8	108.4	39	195.7	137.1	89	236.7	165.7
40	32.8	23.0	90	73.7	51.6	40	114.6	80.3	90	155.6	109.0	40	196.6	137.6	90	237.5	166.3
41	33.6	23.5	91	74.5	52.2	141	115.5	80.9	191	156.4	109.5	241	197.4	138.2	291	238.3	166.9
42	34.4	24.1	92	75.3	52.8	42	116.3	81.4	92	157.2	110.1	42	198.2	138.8	92	239.1	167.5
43	35.2	24.7	93	76.2	53.3	43	117.1	82.0	93	158.1	110.7	43	199.0	139.4	93	240.0	168.0
44	36.0	25.2	94	77.0	53.9	44	117.9	82.6	94	158.9	111.3	44	199.8	139.9	94	240.8	168.6
45	36.9	25.8	95	77.8	54.5	45	118.8	83.2	95	159.7	111.8	45	200.6	140.5	95	241.6	169.2
46	37.7	26.4	96	78.6	55.1	146	119.6	83.7	196	160.5	112.4	246	201.5	141.1	296	242.4	169.8
47	38.5	27.0	97	79.4	55.6	47	120.4	84.3	97	161.3	113.0	47	202.3	141.7	97	243.2	170.3
48	39.3	27.5	98	80.3	56.2	48	121.2	84.9	98	162.2	113.6	48	203.1	142.2	98	244.1	170.9
49	40.1	28.1	99	81.1	56.8	49	122.0	85.5	99	163.0	114.1	49	203.9	142.8	99	244.9	171.5
50	41.0	28.7	100	81.9	57.4	150	122.8	86.0	200	163.8	114.7	250	204.7	143.4	300	245.7	172.1
Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	00.8	00.6	51	41.3	30.0	101	81.7	59.4	151	122.2	88.8	201	162.6	118.1	251	203.1	147.5
2	01.6	01.2	52	42.1	30.6	02	82.5	60.0	52	123.0	89.3	02	163.4	118.7	52	203.9	148.1
3	-2.4	01.8	53	42.9	31.2	03	83.3	60.5	53	123.8	89.9	03	164.2	119.3	53	204.7	148.7
4	03.2	02.4	54	43.7	31.7	04	84.1	61.1	54	124.6	90.5	04	165.0	119.9	54	205.5	149.3
5	04.0	02.9	55	44.5	32.3	05	84.9	61.7	55	125.4	91.1	05	165.8	120.5	55	206.3	149.9
6	04.9	03.5	56	45.3	32.9	106	85.8	62.3	156	126.2	91.7	206	166.7	121.1	256	207.1	150.5
7	05.7	04.1	57	46.1	33.5	07	86.6	62.9	57	127.0	92.3	07	167.5	121.7	57	207.9	151.1
8	06.5	04.7	58	46.9	34.1	08	87.4	63.5	58	127.8	92.9	08	168.3	122.3	58	208.7	151.7
9	07.3	05.3	59	47.7	34.7	09	88.2	64.1	59	128.6	93.5	09	169.1	122.8	59	209.5	152.2
10	08.1	05.9	60	48.5	35.3	10	89.0	64.7	60	129.4	94.0	10	169.9	123.4	60	210.3	152.8
11	08.9	06.5	61	49.3	35.9	111	89.8	65.2	161	130.2	94.6	211	170.7	124.0	261	211.1	153.4
12	09.7	07.1	62	50.2	36.4	12	90.6	65.8	62	131.1	95.2	12	171.5	124.6	62	212.0	154.0
13	10.5	07.6	63	51.0	37.0	13	91.4	66.4	63	131.9	95.8	13	172.3	125.2	63	212.8	154.6
14	11.3	08.2	64	51.8	37.6	14	92.2	67.0	64	132.7	96.4	14	173.1	125.8	64	213.6	155.2
15	12.1	08.8	65	52.6	38.2	15	93.0	67.6	65	133.5	97.0	15	173.9	126.4	65	214.4	155.8
16	12.9	09.4	66	53.4	38.8	116	93.8	68.2	166	134.3	97.6	216	174.7	127.0	266	215.2	156.4
17	13.8	10.0	67	54.2	39.4	17	94.7	68.8	67	135.1	98.2	17	175.6	127.6	67	216.0	156.9
18	14.6	10.6	68	55.0	40.0	18	95.5	69.4	68	135.9	98.7	18	176.4	128.1	68	216.8	157.5
19	15.4	11.2	69	55.8	40.6	19	96.3	69.9	69	136.7	99.3	19	177.2	128.7	69	217.6	158.1
20	16.2	11.8	70	56.6	41.1	20	97.1	70.5	70	137.5	99.9	20	178.0	129.3	70	218.4	158.7
21	17.0	12.3	71	57.4	41.7	121	97.9	71.1	171	138.3	100.5	221	178.8	129.9	271	219.2	159.3
22	17.8	12.9	72	58.2	42.3	22	98.7	71.7	72	139.1	101.1	22	179.6	130.5	72	220.0	159.9
23	18.6	13.5	73	59.1	42.9	23	99.5	72.3	73	140.0	101.7	23	180.4	131.1	73	220.9	160.5
24	19.4	14.1	74	59.9	43.5	24	100.3	72.9	74	140.8	102.3	24	181.2	131.7	74	221.7	161.1
25	20.2	14.7	75	60.7	44.1	25	101.1	73.5	75	141.6	102.9	25	182.0	132.3	75	222.5	161.6
26	21.0	15.3	76	61.5	44.7	126	101.9	74.1	176	142.4	103.5	226	182.8	132.8	276	223.3	162.2
27	21.8	15.9	77	62.3	45.3	27	102.7	74.7	77	143.2	104.0	27	183.6	133.4	77	224.1	162.8
28	22.7	16.5	78	63.1	45.8	28	103.6	75.2	78	144.0	104.6	28	184.5	134.0	78	224.9	163.4
29	23.5	17.0	79	63.9	46.4	29	104.4	75.8	79	144.8	105.2	29	185.3	134.6	79	225.7	164.0
30	24.3	17.6	80	64.7	47.0	30	105.2	76.4	80	145.6	105.8	30	186.1	135.2	80	226.5	164.6
31	25.1	18.2	81	65.5	47.6	131	106.0	77.0	181	146.4	106.4	231	186.9	135.8	281	227.3	165.2
32	25.9	18.8	82	66.3	48.2	32	106.8	77.6	82	147.2	107.0	32	187.7	136.4	82	228.1	165.8
33	26.7	19.4	83	67.1	48.8	33	107.6	78.2	83	148.0	107.6	33	188.5	137.0	83	228.9	166.3
34	27.5	20.0	84	68.0	49.4	34	108.4	78.8	84	148.9	108.2	34	189.3	137.5	84	229.8	166.9
35	28.3	20.6	85	68.8	50.0	35	109.2	79.4	85	149.7	108.7	35	190.1	138.1	85	230.6	167.5
36	29.1	21.2	86	69.6	50.6	136	110.0	79.9	186	150.5	109.3	236	190.9	138.7	286	231.4	168.1
37	29.9	21.7	87	70.4	51.1	37	110.8	80.5	87	151.3	109.9	37	191.7	139.3	87	232.2	168.7
38	30.7	22.3	88	71.2	51.7	38	111.6	81.1	88	152.1	110.5	38	192.5	139.9	88	233.0	169.3
39	31.6	22.9	89	72.0	52.3	39	112.5	81.7	89	152.9	111.1	39	193.3	140.5	89	233.8	169.9
40	32.4	23.5	90	72.8	52.9	40	113.3	82.3	90	153.7	111.7	40	194.2	141.1	90	234.6	170.5
41	33.2	24.1	91	73.6	53.5	141	114.1	82.9	191	154.5	112.3	241	195.0	141.7	291	235.4	171.0
42	34.0	24.7	92	74.4	54.1	42	114.9	83.5	92	155.3	112.9	42	195.8	142.2	92	236.2	171.6
43	34.8	25.3	93	75.2	54.7	43	115.7	84.1	93	156.1	113.4	43	196.6	142.8	93	237.0	172.2
44	35.6	25.9	94	76.0	55.3	44	116.5	84.6	94	156.9	114.0	44	197.4	143.4	94	237.8	172.8
45	36.4	26.5	95	76.9	55.8	45	117.3	85.2	95	157.8	114.6	45	198.2	144.0	95	238.7	173.4
46	37.2	27.0	96	77.7	56.4	146	118.1	85.8	196	158.6	115.2	246	199.0	144.6	296	239.5	174.0
47	38.0	27.6	97	78.5	57.0	47	118.9	86.4	97	159.4	115.8	47	199.8	145.2	97	240.3	174.6
48	38.8	28.2	98	79.3	57.6	48	119.7	87.0	98	160.2	116.4	48	200.6	145.8	98	241.1	175.2
49	39.6	28.8	99	80.1	58.2	49	120.5	87.6	99	161.0	117.0	49	201.4	146.4	99	241.9	175.7
50	40.5	29.4	100	80.9	58.8	150	121.3	88.2	200	161.8	117.6	250	202.2	146.9	300	242.7	176.3
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00.6	51	40.7	30.7	101	80.7	60.8	151	120.6	90.9	201	160.5	121.0	251	200.4	151.0
2	01.6	01.2	52	41.5	31.3	02	81.5	61.4	52	121.4	91.5	02	161.3	121.6	52	201.2	151.6
3	02.4	01.8	53	42.3	31.9	03	82.3	62.0	53	122.2	92.1	03	162.1	122.2	53	202.0	152.2
4	03.2	02.4	54	43.1	32.5	04	83.1	62.6	54	123.0	92.7	04	162.9	122.8	54	202.8	152.9
5	04.0	03.0	55	43.9	33.1	05	83.9	63.2	55	123.8	93.3	05	163.7	123.4	55	203.6	153.5
6	04.8	03.6	56	44.7	33.7	106	84.7	63.8	156	124.6	93.9	206	164.5	124.0	256	204.4	154.1
7	05.6	04.2	57	45.5	34.3	07	85.5	64.4	57	125.4	94.5	07	165.3	124.6	57	205.2	154.7
8	06.4	04.8	58	46.3	34.9	08	86.2	65.0	58	126.2	95.1	08	166.1	125.2	58	206.0	155.3
9	07.2	05.4	59	47.1	35.5	09	87.0	65.6	59	127.0	95.7	09	166.9	125.8	59	206.8	155.9
10	08.0	06.0	60	47.9	36.1	10	87.8	66.2	60	127.8	96.3	10	167.7	126.4	60	207.6	156.5
11	08.8	06.6	61	48.7	36.7	111	88.6	66.8	161	128.6	96.9	211	168.5	127.0	261	208.0	157.1
12	09.6	07.2	62	49.5	37.3	12	89.4	67.4	62	129.4	97.5	12	169.3	127.6	62	209.2	157.7
13	10.4	07.8	63	50.3	37.9	13	90.2	68.0	63	130.2	98.1	13	170.1	128.2	63	210.0	158.3
14	11.2	08.4	64	51.1	38.5	14	91.0	68.6	64	131.0	98.7	14	170.9	128.8	64	210.8	158.9
15	12.0	09.0	65	51.9	39.1	15	91.8	69.2	65	131.8	99.3	15	171.7	129.4	65	211.6	159.5
16	12.8	09.6	66	52.7	39.7	116	92.6	69.8	166	132.6	99.9	216	172.5	130.0	266	212.4	160.1
17	13.6	10.2	67	53.5	40.3	17	93.4	70.4	67	133.4	100.5	17	173.3	130.6	67	213.2	160.7
18	14.4	10.8	68	54.3	40.9	18	94.2	71.0	68	134.2	101.1	18	174.1	131.2	68	214.0	161.3
19	15.2	11.4	69	55.1	41.5	19	95.0	71.6	69	135.0	101.7	19	174.9	131.8	69	214.8	161.9
20	16.0	12.0	70	55.9	42.1	20	95.8	72.2	70	135.8	102.3	20	175.7	132.4	70	215.6	162.5
21	16.8	12.6	71	56.7	42.7	121	96.6	72.8	171	136.6	102.9	221	176.5	133.0	271	216.4	163.1
22	17.6	13.2	72	57.5	43.3	22	97.4	73.4	72	137.4	103.5	22	177.3	133.6	72	217.2	163.7
23	18.4	13.8	73	58.3	43.9	23	98.2	74.0	73	138.2	104.1	23	178.1	134.2	73	218.0	164.3
24	19.2	14.4	74	59.1	44.5	24	99.0	74.6	74	139.0	104.7	24	178.9	134.8	74	218.8	164.9
25	20.0	15.0	75	59.9	45.1	25	99.8	75.2	75	139.8	105.3	25	179.7	135.4	75	219.6	165.5
26	20.8	15.6	76	60.7	45.7	126	100.6	75.8	176	140.6	105.9	226	180.5	136.0	276	220.4	166.1
27	21.6	16.2	77	61.5	46.3	27	101.4	76.4	77	141.4	106.5	27	181.3	136.6	77	221.2	166.7
28	22.4	16.9	78	62.3	46.9	28	102.2	77.0	78	142.2	107.1	28	182.1	137.2	78	222.0	167.3
29	23.2	17.5	79	63.1	47.5	29	103.0	77.6	79	142.9	107.7	29	182.9	137.8	79	222.8	167.9
30	24.0	18.1	80	63.9	48.1	30	103.8	78.2	80	143.7	108.3	30	183.7	138.4	80	223.6	168.5
31	24.8	18.7	81	64.7	48.7	131	104.6	78.8	181	144.5	108.9	231	184.5	139.0	281	224.4	169.1
32	25.6	19.3	82	65.5	49.3	32	105.4	79.4	82	145.3	109.5	32	185.3	139.6	82	225.2	169.7
33	26.4	19.9	83	66.3	49.9	33	106.2	80.0	83	146.1	110.1	33	186.1	140.2	83	226.0	170.3
34	27.2	20.5	84	67.1	50.6	34	107.0	80.6	84	146.9	110.7	34	186.9	140.8	84	226.8	170.9
35	28.0	21.1	85	67.9	51.2	35	107.8	81.2	85	147.7	111.3	35	187.7	141.4	85	227.6	171.5
36	28.7	21.7	86	68.7	51.8	136	108.6	81.8	186	148.5	111.9	236	188.5	142.0	286	228.4	172.1
37	29.5	22.3	87	69.5	52.4	37	109.4	82.4	87	149.3	112.5	37	189.3	142.6	87	229.2	172.7
38	30.3	22.9	88	70.3	53.0	38	110.2	83.0	88	150.1	113.1	38	190.1	143.2	88	230.0	173.3
39	31.1	23.5	89	71.1	53.6	39	111.0	83.6	89	150.9	113.7	39	190.9	143.8	89	230.8	173.9
40	31.9	24.1	90	71.9	54.2	40	111.8	84.2	90	151.7	114.3	40	191.7	144.4	90	231.6	174.5
41	32.7	24.7	91	72.7	54.8	141	112.6	84.9	191	152.5	114.9	241	192.5	145.0	291	232.4	175.1
42	33.5	25.3	92	73.5	55.4	42	113.4	85.5	92	153.3	115.5	42	193.3	145.6	92	233.2	175.7
43	34.3	25.9	93	74.3	56.0	43	114.2	86.1	93	154.1	116.1	43	194.1	146.2	93	234.0	176.3
44	35.1	26.5	94	75.1	56.6	44	115.0	86.7	94	154.9	116.7	44	194.9	146.8	94	234.8	176.9
45	35.9	27.1	95	75.9	57.2	45	115.8	87.3	95	155.7	117.3	45	195.7	147.4	95	235.6	177.5
46	36.7	27.7	96	76.7	57.8	146	116.6	87.9	196	156.5	117.9	246	196.5	148.0	296	236.4	178.1
47	37.5	28.3	97	77.5	58.4	47	117.4	88.5	97	157.3	118.6	47	197.3	148.6	97	237.2	178.7
48	38.3	28.9	98	78.3	59.0	48	118.2	89.1	98	158.1	119.2	48	198.1	149.2	98	238.0	179.3
49	39.1	29.5	99	79.1	59.6	49	119.0	89.7	99	158.9	119.8	49	198.9	149.8	99	238.8	179.9
50	39.9	30.1	100	79.9	60.2	150	119.8	90.3	200	159.7	120.4	250	199.7	150.4	300	239.6	180.5
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00.6	51	40.2	31.4	101	79.0	62.2	151	119.0	93.0	201	158.4	123.8	251	197.8	154.5
2	01.6	01.2	52	41.0	32.0	02	80.4	62.8	52	119.8	93.6	02	159.2	124.4	52	198.5	155.2
3	02.4	01.8	53	41.8	32.6	03	81.2	63.4	53	120.5	94.2	03	159.9	125.0	53	199.3	155.8
4	03.2	02.5	54	42.5	33.2	04	81.9	64.0	54	121.3	94.8	04	160.7	125.6	54	200.1	156.4
5	03.9	03.1	55	43.3	33.9	05	82.7	64.6	55	122.1	95.4	05	161.5	126.2	55	200.9	157.0
6	04.7	03.7	56	44.1	34.5	106	83.5	65.3	156	122.9	96.0	206	162.3	126.8	256	201.7	157.6
7	05.5	04.3	57	44.9	35.1	07	84.3	65.9	57	123.7	96.7	07	163.1	127.4	57	202.5	158.2
8	06.3	04.9	58	45.7	35.7	08	85.1	66.5	58	124.5	97.3	08	163.9	128.1	58	203.3	158.9
9	07.1	05.5	59	46.5	36.3	09	85.9	67.1	59	125.3	97.9	09	164.7	128.7	59	204.1	159.5
10	07.9	06.2	60	47.3	36.9	10	86.7	67.7	60	126.1	98.5	10	165.5	129.3	60	204.9	160.1
11	08.7	06.8	61	48.1	37.6	111	87.5	68.3	161	126.9	99.1	211	166.2	129.9	261	205.6	160.7
12	09.5	07.4	62	48.9	38.2	12	88.2	69.0	62	127.6	99.7	12	167.0	130.5	62	206.4	161.3
13	10.2	08.0	63	49.6	38.8	13	89.0	69.6	63	128.4	100.4	13	167.8	131.1	63	207.2	161.9
14	11.0	08.6	64	50.4	39.4	14	89.8	70.2	64	129.2	101.0	14	168.6	131.8	64	208.0	162.5
15	11.8	09.2	65	51.2	40.0	15	90.6	70.8	65	130.0	101.6	15	169.4	132.4	65	208.8	163.2
16	12.6	09.9	66	52.0	40.6	116	91.4	71.4	166	130.8	102.2	216	170.2	133.0	266	209.6	163.8
17	13.4	10.5	67	52.8	41.3	17	92.2	72.0	67	131.6	102.8	17	171.0	133.6	67	210.4	164.4
18	14.2	11.1	68	53.6	41.9	18	93.0	72.7	68	132.4	103.4	18	171.8	134.2	68	211.2	165.0
19	15.0	11.7	69	54.4	42.5	19	93.8	73.3	69	133.2	104.1	19	172.5	134.8	69	211.9	165.6
20	15.8	12.3	70	55.2	43.1	20	94.5	73.9	70	133.9	104.7	20	173.3	135.5	70	212.7	166.2
21	16.5	12.9	71	55.9	43.7	121	95.3	74.5	171	134.7	105.3	221	174.1	136.1	271	213.5	166.9
22	17.3	13.5	72	56.7	44.3	22	96.1	75.1	72	135.5	105.9	22	174.9	136.7	72	214.3	167.5
23	18.1	14.2	73	57.5	44.9	23	96.9	75.7	73	136.3	106.5	23	175.7	137.3	73	215.1	168.1
24	18.9	14.8	74	58.3	45.6	24	97.7	76.3	74	137.1	107.1	24	176.5	137.9	74	215.9	168.7
25	19.7	15.4	75	59.1	46.2	25	98.5	77.0	75	137.9	107.7	25	177.3	138.5	75	216.7	169.3
26	20.5	16.0	76	59.9	46.8	126	99.3	77.6	176	138.7	108.4	226	178.1	139.1	276	217.5	169.9
27	21.3	16.6	77	60.7	47.4	27	100.1	78.2	77	139.5	109.0	27	178.9	139.8	77	218.2	170.5
28	22.1	17.2	78	61.5	48.0	28	100.9	78.8	78	140.2	109.6	28	179.6	140.4	78	219.0	171.2
29	22.9	17.9	79	62.2	48.6	29	101.6	79.4	79	141.0	110.2	29	180.4	141.0	79	219.8	171.8
30	23.6	18.5	80	63.0	49.3	30	102.4	80.0	80	141.8	110.8	30	181.2	141.6	80	220.6	172.4
31	24.4	19.1	81	63.8	49.9	131	103.2	80.7	181	142.6	111.4	231	182.0	142.2	281	221.4	173.0
32	25.2	19.7	82	64.6	50.5	32	104.0	81.3	82	143.4	112.1	32	182.8	142.8	82	222.2	173.6
33	26.0	20.3	83	65.4	51.1	33	104.8	81.9	83	144.2	112.7	33	183.6	143.5	83	223.0	174.2
34	26.8	20.9	84	66.2	51.7	34	105.6	82.5	84	145.0	113.3	34	184.4	144.1	84	223.8	174.9
35	27.6	21.5	85	67.0	52.3	35	106.4	83.1	85	145.8	113.9	35	185.2	144.7	85	224.5	175.5
36	28.4	22.2	86	67.8	53.0	136	107.2	83.7	186	146.5	114.5	236	185.9	145.3	286	225.3	176.1
37	29.2	22.8	87	68.5	53.6	37	107.9	84.4	87	147.3	115.1	37	186.7	145.9	87	226.1	176.7
38	29.9	23.4	88	69.3	54.2	38	108.7	85.0	88	148.1	115.8	38	187.5	146.5	88	226.9	177.3
39	30.7	24.0	89	70.1	54.8	39	109.5	85.6	89	148.9	116.5	39	188.3	147.2	89	227.7	177.9
40	31.5	24.6	90	70.9	55.4	40	110.3	86.2	90	149.7	117.0	40	189.1	147.8	90	228.4	178.6
41	32.3	25.2	91	71.7	56.0	141	111.1	86.8	191	150.5	117.6	241	189.9	148.4	291	229.3	179.2
42	33.1	25.9	92	72.5	56.6	42	111.9	87.4	92	151.3	118.2	42	190.7	149.0	92	230.1	179.8
43	33.9	26.5	93	73.3	57.3	43	112.7	88.0	93	152.1	118.8	43	191.5	149.6	93	230.9	180.4
44	34.7	27.1	94	74.1	57.9	44	113.5	88.7	94	152.9	119.4	44	192.2	150.2	94	231.6	181.0
45	35.5	27.7	95	74.9	58.5	45	114.2	89.3	95	153.6	120.1	45	193.0	150.8	95	232.4	181.6
46	36.2	28.3	96	75.6	59.1	146	115.0	89.9	196	154.4	120.7	246	193.8	151.5	296	233.2	182.2
47	37.0	28.9	97	76.4	59.7	47	115.8	90.5	97	155.2	121.3	47	194.6	152.1	97	234.0	182.9
48	37.8	29.6	98	77.2	60.3	48	116.6	91.1	98	156.0	121.9	48	195.4	152.7	98	234.8	183.5
49	38.6	30.2	99	78.0	61.0	49	117.4	91.7	99	156.8	122.5	49	196.2	153.3	99	235.6	184.1
50	39.4	30.8	100	78.8	61.6	150	118.2	92.4	200	157.6	123.1	250	197.0	153.9	300	236.4	184.7
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	00,8	00,6	51	39 6	32.1	101	78.5	63.6	151	117.3	95,0	201	156.2	126.5	251	195.1	158.0
2	01.6	01,3	52	40.4	32.7	02	79.3	64.2	52	118.1	95 7	02	157.0	127,1	52	195,8	158.6
3	02.3	01,9	53	41,2	33.4	03	80,0	64.8	53	118.9	96.3	03	157.8	127.7	53	196.6	159,2
4	03.1	02.5	54	42.0	34.0	04	80,8	65.4	54	119.7	96.9	04	158.5	128.4	54	197.4	159.8
5	03.9	03.1	55	42.7	34.6	05	81.6	66.1	55	120.5	97.5	05	159.3	129 0	55	198.2	160.5
6	04.7	03,8	56	43.5	35.2	106	82.4	66.7	156	121.2	98.2	206	160.1	129 6	256	198.9	161.1
7	05.4	04,4	57	44.3	35.9	07	83,1	67.3	57	122.0	98,8	07	160.9	130.3	57	199.7	161.7
8	06.2	05.0	58	45.1	36 5	08	83.9	68.0	58	122.8	99.4	08	161.6	130.9	58	200.5	162.4
9	07.0	05.7	59	45.8	37.1	09	84.7	68.6	59	123.6	100.1	09	162.4	131.5	59	201.3	163 0
10	07.8	06.3	60	46.6	37.8	10	85.5	69.2	60	124.3	100 7	10	163.0	132.2	60	202.0	163.6
11	08.5	06.9	61	47.4	38.4	111	86.3	69.9	161	125.1	101,3	211	164.0	132.8	261	202.8	164,2
12	09.3	07.6	62	48 2	39.0	12	87.0	70.5	62	125.9	101.9	12	164.7	133.4	62	203.6	164.9
13	10.1	08,2	63	49,0	39.6	13	87.8	71.1	63	126.7	102.6	13	165.5	134.0	63	204.4	165.5
14	10.9	08.8	64	49.7	40.3	14	88.6	71.7	64	127.4	103.2	14	166 3	134.7	64	205.2	166.1
15	11.7	09.4	65	50.5	40.9	15	89.4	72.4	65	128.2	103.8	15	167.1	135 3	65	205 9	166.8
16	12.4	10.1	66	51.3	41.5	116	90.1	73.0	166	129,0	104.5	216	167,9	135 9	266	206.7	167.4
17	13.2	10.7	67	52.1	42.2	17	90.9	73.6	67	129 8	105.1	17	168.6	136.6	67	207.5	168.0
18	14.0	11.3	68	52 8	42.8	18	91.7	74.3	68	130.6	105 7	18	169.4	137.2	68	208.3	168.7
19	14.8	12.0	69	53 6	43.4	19	92,5	74.9	69	131.3	106.4	19	170.2	137.8	69	209.0	169.3
20	15 5	12.6	70	54.4	44,1	20	93 3	75.5	70	132.1	107.0	20	171.0	138 4	70	209.8	169.9
21	16.3	13 2	71	55.2	44.7	121	94.0	76.1	171	132.9	107.6	221	171.7	139.1	271	210.6	170.5
22	17.1	13.8	72	56.0	45.3	22	94,8	76.8	72	133.7	108.2	22	172.5	139.7	72	211.4	171.2
23	17 9	14,5	73	56.7	45 9	23	95.6	77.4	73	134.4	108.9	23	173 3	140.3	73	212,1	171,8
24	18.7	15.1	74	57.5	46.6	24	96.4	78.0	74	135.2	109,5	24	174.1	141.0	74	212 9	172.4
25	19 4	15.7	75	58.3	47.2	25	97.1	78.7	75	136.0	110,1	25	174.8	141.6	75	213.7	173,1
26	20,2	16.4	76	59.1	47.8	126	97.9	79.3	176	136.8	110.8	226	175.6	142.2	276	214.5	173.7
27	21.0	17.0	77	59 8	48.5	27	98.7	79.9	77	137,5	111,4	27	176.4	142.9	77	215.3	174,3
28	21.8	17.6	78	60.6	49.1	28	99.5	80.6	78	138.3	112.0	28	177.2	143.5	78	216.0	174.9
29	22.5	18.2	79	61.4	49.7	29	100.2	81.2	79	139.1	112.6	29	178.0	144,1	79	216.8	175.6
30	23.3	18.9	80	62.2	50.3	30	101.0	81,8	80	139.9	113,3	30	178.7	144.7	280	217.6	176.2
31	24.1	19.5	81	62.9	51.0	131	101.8	82.4	181	140.7	113.9	231	179.5	145.4	281	218.4	176.8
32	24,9	20,1	82	63.7	51.6	32	102.6	83.1	82	141,4	114.5	32	180.3	146.0	82	219.1	177.5
33	25.6	20,8	83	64.5	52.2	33	103.4	83.7	83	142.2	115,2	33	181.1	146.6	83	219.9	178.1
34	26.4	21.4	84	65.3	52.9	34	104.1	84.3	84	143.0	115.8	34	181.8	147.3	84	220.7	178,7
35	27.2	22.0	85	66.1	53.5	35	104.9	85.0	85	143.8	116.4	35	182.6	147.9	85	221.5	179.4
36	28.0	22.7	86	66.8	54.1	136	105.7	85.6	186	144.5	117.1	236	183.4	148.5	286	222.3	180.0
37	28.8	23.3	87	67.6	54.7	37	106,5	86.2	87	145.3	117,7	37	184.2	149.1	87	223.0	180,6
38	29.5	23.9	88	68.4	55.4	38	107.2	86.8	88	146.1	118.3	38	185.0	149,8	88	223.8	181,2
39	30.3	24.5	89	69.2	56.0	39	108.0	87.5	89	146.9	118.9	39	185,7	150.4	89	224.6	181.9
40	31.1	25 2	90	69.9	56.6	40	108.8	88,1	90	147.6	119.6	40	186.5	151.0	90	225.4	182.5
41	31.9	25.8	91	70.7	57.3	141	109.6	88.7	191	148.4	120.2	241	187.3	151,7	291	226.1	183.1
42	32.6	26.4	92	71.5	57,9	42	110.3	89.4	92	149.2	120.8	42	188.1	152.3	92	226 9	183.8
43	33.4	27,1	93	72.3	58,5	43	111.1	90.0	93	150.0	121.5	43	188.8	152.9	93	227.7	184.4
44	34.2	27 7	94	73,0	59.2	44	111.9	90 6	94	150.8	122.1	44	189.6	153,6	94	228.5	185.0
45	35.0	28.3	95	73.8	59.8	45	112,7	91.2	95	151.5	122.7	45	190.4	154.2	95	229.2	185.6
46	35.7	28.9	96	74.6	60.4	146	113.5	91.9	196	152.3	123.3	246	191.2	154.8	296	230.0	186.3
47	36.5	29.6	97	75.4	60.9	47	114.2	92.5	97	153.1	124.0	47	191.9	155.4	97	230.8	186.9
48	37.3	30.2	98	76.2	61.7	48	115 0	93.1	98	153.9	124.6	48	192 7	156.1	98	231.6	187.5
49	38,1	30.8	99	76.9	62.3	49	115.8	93.8	99	154.6	125.2	49	193.5	156.7	99	232.4	188.2
50	38.9	31.5	100	77.7	62.9	150	116.6	94.4	200	155.4	125.9	250	194.3	157.3	300	233.1	188.8
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00,8	00,6	51	39.1	32.8	101	77.4	64.9	151	115.7	97.1	201	154.0	129.2	251	192.3	161.4
2	01.5	01,3	52	39,8	33.4	02	78.1	65.6	52	116.4	97.7	02	154.7	129.9	52	193.0	162.0
3	02.3	01.9	53	40.6	34.1	03	78.9	66.2	53	117.2	98.4	03	155.5	130.5	53	193.8	162.6
4	03.1	02.9	54	41.4	34.7	04	79.7	66.8	54	118.0	99.0	04	156.3	131.1	54	194.6	163.3
5	03.8	03.2	55	42.1	35.3	05	80.4	67.5	55	118.7	99.6	05	157.0	131.8	55	195.3	163.9
6	04.6	03,9	56	42.9	36.0	106	81.2	68.1	156	119.5	100.3	206	157.8	132.4	256	196.1	164.6
7	05.4	04,5	57	43.7	36.6	07	82.0	68.8	57	120.3	100.9	07	158.6	133.1	57	196.9	165.2
8	06.1	05.1	58	44.4	37.3	08	82.7	69.4	58	121.0	101.6	08	159.3	133.7	58	197.6	165.9
9	06.9	05.8	59	45.2	37.9	09	83.5	70.1	59	121.8	102.2	09	160.1	134.4	59	198.4	166.5
10	07.7	06.4	60	46.0	38.6	10	84.3	70.7	60	122.6	102.8	10	160.9	135.0	60	199.2	167.1
11	08.4	07.1	61	46,7	39.2	111	85.0	71.3	161	123.3	103.5	211	161.6	135.6	261	199.9	167.8
12	09.2	07.7	62	47.5	39.9	12	85.8	72.0	62	124.1	104.1	12	162.4	136.3	62	200.7	168.4
13	10.0	08,4	63	48.3	40.5	13	86.6	72.6	63	124.9	104.8	13	163.2	136.9	63	201.4	169.1
14	10.7	09.0	64	49.0	41.1	14	87.3	73.3	64	125.6	105.4	14	163.9	137.6	64	202.2	169.7
15	11.5	09.6	65	49.8	41.8	15	88.1	73.9	65	126.4	106.1	15	164.7	138.2	65	203.0	170.4
16	12.3	10.3	66	50.6	42.4	116	88.9	74.6	166	127.2	106.7	216	165.4	138.8	266	203.7	171.0
17	13.0	10.9	67	51.3	43.1	17	89.6	75.2	67	127.9	107.3	17	166.2	139.5	67	204.5	171.6
18	13.8	11.6	68	52.1	43.7	18	90.4	75.9	68	128.7	108.0	18	167.0	140.1	68	205.3	172.3
19	14.6	12.2	69	52.9	44.4	19	91.2	76.5	69	129.4	108.6	19	167.7	140.8	69	206.0	172.9
20	15.3	12.9	70	53.6	45.0	20	91.9	77.1	70	130.2	109.3	20	168.5	141.4	70	206.8	173.6
21	16.1	13.5	71	54.4	45.6	121	92.7	77.8	171	131.0	109.9	221	169.3	142.1	271	207.6	174.2
22	16.9	14.1	72	55.2	46.3	22	93.4	78.4	72	131.7	110.6	22	170.0	142.7	72	208.3	174.8
23	17.6	14.8	73	55.9	46.9	23	94.2	79.1	73	132.5	111.2	23	170.8	143.3	73	209.1	175.5
24	18.4	15.4	74	56.7	47.6	24	95.0	79.7	74	133.3	111.9	24	171.6	144.0	74	209.9	176.1
25	19.2	16.1	75	57.4	48.2	25	95.7	80.4	75	134.0	112.5	25	172.3	144.6	75	210.6	176.8
26	19.9	16.7	76	58.2	48.9	126	96.5	81.0	176	134.8	113.1	226	173.1	145.3	276	211.4	177.4
27	20.7	17.4	77	59.0	49.5	27	97.3	81.6	77	135.6	113.8	27	173.9	145.9	77	212.2	178.1
28	21.4	18.0	78	59.7	50.1	28	98.0	82.3	78	136.3	114.4	28	174.6	146.6	78	212.9	178.7
29	22.2	18.6	79	60.5	50.8	29	98.8	82.9	79	137.1	115.1	29	175.4	147.2	79	213.7	179.3
30	23.0	19.3	80	61.3	51.4	30	99.6	83.6	80	137.9	115.7	30	176.2	147.9	80	214.5	180.0
31	23.7	19.9	81	62.0	52.1	131	100.3	84.2	181	138.6	116.4	231	176.9	148.5	281	215.2	180.6
32	24.5	20.6	82	62.8	52.7	32	101.1	84.9	82	139.4	117.0	32	177.7	149.1	82	216.0	181.3
33	25.3	21.2	83	63.6	53.4	33	101.9	85.5	83	140.2	117.6	33	178.5	149.8	83	216.8	181.9
34	26.0	21.9	84	64.3	54.0	34	102.6	86.1	84	140.9	118.3	34	179.2	150.4	84	217.5	182.6
35	26.8	22.5	85	65.1	54.6	35	103.4	86.8	85	141.7	118.9	35	180.0	151.1	85	218.3	183.2
36	27.6	23.1	86	65.9	55.3	136	104.2	87.4	186	142.5	119.6	236	180.8	151.7	286	219.1	183.9
37	28.3	23.8	87	66.6	55.9	37	104.9	88.1	87	143.2	120.2	37	181.5	152.4	87	219.8	184.5
38	29.1	24.4	88	67.4	56.6	38	105.7	88.7	88	144.0	120.9	38	182.3	153.0	88	220.6	185.1
39	29.9	25.1	89	68.2	57.2	39	106.5	89.4	89	144.8	121.5	39	183.1	153.6	89	221.4	185.8
40	30.6	25.7	90	68.9	57.9	40	107.2	90.0	90	145.5	122.1	40	183.8	154.3	90	222.1	186.4
41	31.4	26.4	91	69.7	58.5	141	108.0	90.6	191	146.3	122.8	241	184.6	154.9	291	222.9	187.1
42	32.2	27.0	92	70.5	59.1	42	108.8	91.3	92	147.1	123.4	42	185.4	155.6	92	223.7	187.7
43	32.9	27.6	93	71.2	59.8	43	109.5	91.9	93	147.8	124.1	43	186.1	156.2	93	224.4	188.4
44	33.7	28.3	94	72.0	60.4	44	110.3	92.6	94	148.6	124.7	44	186.9	156.9	94	225.2	189.0
45	34.5	28.9	95	72.8	61.1	45	111.1	93.2	95	149.4	125.4	45	187.7	157.5	95	226.0	189.6
46	35.2	29.6	96	73.5	61.7	146	111.8	93.9	196	150.1	126.0	246	188.4	158.1	296	226.7	190.3
47	36.0	30.2	97	74.3	62.4	47	112.6	94.5	97	150.9	126.6	47	189.2	158.8	97	227.5	190.9
48	36.8	30.8	98	75.1	63.0	48	113.4	95.1	98	151.7	127.3	48	190.0	159.4	98	228.3	191.6
49	37.5	31.5	99	75.8	63.6	49	114.1	95.8	99	152.4	127.9	49	190.7	160.1	99	229.0	192.2
50	38.3	32.1	100	76.6	64.3	150	114.9	96.4	200	153.2	128.6	250	191.5	160.7	300	229.8	192.9
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00.7	51	38.5	33.5	101	76.2	66.3	151	114.0	99.0	201	151.7	131.8	251	189.4	164.6
2	01.5	01.3	52	39.2	34.1	02	77.0	66.9	52	114.7	99.7	02	152.5	132.5	52	190.2	165.3
3	02.3	02.0	53	40.0	34.8	03	77.7	67.6	53	115.5	100.4	03	153.2	133.2	53	190.9	166.0
4	03.0	02.6	54	40.8	35.4	04	78.5	68.2	54	116.2	101.0	04	154.0	133.8	54	191.7	166.6
5	03.8	03.3	55	41.5	36.1	05	79.2	68.9	55	117.0	101.7	05	154.7	134.5	55	192.5	167.3
6	04.5	03.9	56	42.3	36.7	106	80.0	69.5	156	117.7	102.3	206	155.5	135.1	256	193.2	167.9
7	05.3	04.6	57	43.0	37.4	07	80.8	70.2	57	118.5	103.0	07	156.2	135.8	57	194.0	168.6
8	06.0	05.2	58	43.8	38.0	08	81.5	70.8	58	119.2	103.6	08	157.0	136.4	58	194.7	169.2
9	06.8	05.9	59	44.5	38.7	09	82.3	71.5	59	120.0	104.3	09	157.7	137.1	59	195.5	169.9
10	07.5	06.6	60	45.3	39.4	10	83.0	72.2	60	120.8	105.0	10	158.5	137.7	60	196.2	170.5
11	08.3	07.2	61	46.0	40.0	111	83.8	72.8	161	121.5	105.6	211	159.2	138.4	261	197.0	171.2
12	09.1	07.9	62	46.8	40.7	12	84.5	73.5	62	122.3	106.3	12	160.0	139.1	62	197.7	171.9
13	09.8	08.5	63	47.5	41.3	13	85.3	74.1	63	123.0	106.9	13	160.8	139.7	63	198.5	172.5
14	10.6	09.2	64	48.3	42.0	14	86.0	74.8	64	123.8	107.6	14	161.5	140.4	64	199.2	173.2
15	11.3	09.8	65	49.1	42.6	15	86.8	75.4	65	124.5	108.2	15	162.3	141.0	65	200.0	173.8
16	12.1	10.5	66	49.8	43.3	116	87.5	76.1	166	125.3	108.9	216	163.0	141.7	266	200.8	174.5
17	12.8	11.2	67	50.6	44.0	17	88.3	76.7	67	126.0	109.5	17	163.8	142.3	67	201.5	175.1
18	13.6	11.8	68	51.3	44.6	18	89.1	77.4	68	126.8	110.2	18	164.5	143.0	68	202.3	175.8
19	14.3	12.5	69	52.1	45.3	19	89.8	78.1	69	127.5	110.9	19	165.3	143.6	69	203.0	176.4
20	15.1	13.1	70	52.8	45.9	20	90.6	78.7	70	128.3	111.5	20	166.0	144.3	70	203.8	177.1
21	15.8	13.8	71	53.6	46.6	121	91.3	79.4	171	129.1	112.2	221	166.8	145.0	271	204.5	177.8
22	16.6	14.4	72	54.3	47.2	22	92.1	80.0	72	129.8	112.8	22	167.5	145.6	72	205.3	178.4
23	17.4	15.1	73	55.1	47.9	23	92.8	80.7	73	130.6	113.5	23	168.3	146.3	73	206.0	179.1
24	18.1	15.7	74	55.8	48.5	24	93.6	81.3	74	131.3	114.1	24	169.1	146.9	74	206.8	179.7
25	18.9	16.4	75	56.6	49.2	25	94.3	82.0	75	132.1	114.8	25	169.8	147.6	75	207.5	180.4
26	19.6	17.1	76	57.4	49.9	126	95.1	82.6	176	132.8	115.4	226	170.6	148.2	276	208.3	181.0
27	20.4	17.7	77	58.1	50.5	27	95.8	83.3	77	133.6	116.1	27	171.3	148.9	77	209.1	181.7
28	21.1	18.4	78	58.9	51.2	28	96.6	84.0	78	134.3	116.8	28	172.1	149.6	78	209.8	182.4
29	21.9	19.0	79	59.6	51.8	29	97.4	84.6	79	135.1	117.4	29	172.8	150.2	79	210.6	183.0
30	22.6	19.7	80	60.4	52.5	30	98.1	85.3	80	135.8	118.1	30	173.6	150.9	80	211.3	183.7
31	23.4	20.3	81	61.1	53.1	131	98.9	85.9	181	136.6	118.7	231	174.3	151.5	281	212.1	184.3
32	24.2	21.0	82	61.9	53.8	32	99.6	86.6	82	137.4	119.4	32	175.1	152.2	82	212.8	185.0
33	24.9	21.6	83	62.6	54.4	33	100.4	87.2	83	138.1	120.0	33	175.8	152.8	83	213.6	185.6
34	25.7	22.3	84	63.4	55.1	34	101.1	87.9	84	138.9	120.7	34	176.6	153.5	84	214.3	186.3
35	26.4	23.0	85	64.2	55.8	35	101.9	88.6	85	139.6	121.4	35	177.4	154.1	85	215.1	186.9
36	27.2	23.6	86	64.9	56.4	136	102.6	89.2	186	140.4	122.0	236	178.1	154.8	286	215.8	187.6
37	27.9	24.3	87	65.7	57.1	37	103.4	89.9	87	141.1	122.7	37	178.9	155.5	87	216.6	188.3
38	28.7	24.9	88	66.4	57.7	38	104.2	90.5	88	141.9	123.3	38	179.6	156.1	88	217.4	188.9
39	29.4	25.6	89	67.2	58.4	39	104.9	91.2	89	142.6	124.0	39	180.4	156.8	89	218.1	189.6
40	30.2	26.2	90	67.9	59.0	40	105.7	91.8	90	143.4	124.6	40	181.1	157.4	90	218.9	190.3
41	30.9	26.9	91	68.7	59.7	141	106.4	92.5	191	144.2	125.3	241	181.9	158.1	291	219.6	190.9
42	31.7	27.6	92	69.4	60.4	42	107.2	93.1	92	144.9	125.9	42	182.6	158.7	92	220.4	191.5
43	32.5	28.2	93	70.2	61.0	43	107.9	93.8	93	145.7	126.6	43	183.4	159.4	93	221.1	192.2
44	33.2	28.9	94	70.9	61.7	44	108.7	94.5	94	146.4	127.3	44	184.2	160.0	94	221.9	192.8
45	34.0	29.5	95	71.7	62.3	45	109.4	95.1	95	147.2	127.9	45	184.9	160.7	95	222.6	193.5
46	34.7	30.2	96	72.5	63.0	146	110.2	95.8	196	147.9	128.6	246	185.7	161.4	296	223.4	194.2
47	35.5	30.8	97	73.2	63.6	47	110.9	96.4	97	148.7	129.2	47	186.4	162.0	97	224.2	194.8
48	36.2	31.5	98	74.0	64.3	48	111.7	97.1	98	149.4	129.9	48	187.2	162.7	98	224.9	195.5
49	37.0	32.1	99	74.7	64.9	49	112.5	97.7	99	150.2	130.5	49	187.9	163.3	99	225.7	196.1
50	37.7	32.8	100	75.5	65.6	150	113.2	98.4	200	150.9	131.2	250	188.7	164.0	300	226.4	196.8
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.7	00.7	51	37.9	34.1	101	75.0	67,6	151	112.2	101,0	201	149.3	134.5	251	186,5	167.9
2	01.5	01.3	52	38.6	34.8	02	75.8	68.2	52	112.9	101.7	02	150.1	135.1	52	187.2	168.6
3	02.2	02.0	53	39.4	35.5	03	76.5	68.9	53	113.7	102.4	03	150.8	135.8	53	187.9	169.3
4	03.0	02.7	54	40.1	36.1	04	77.3	69.6	54	114.4	103.0	04	151.5	136.5	54	188.7	169,9
5	03.7	03.3	55	40.9	36.8	05	78.0	70.2	55	115.1	103.7	05	152.3	137.1	55	189.4	170.6
6	04.5	04.0	56	41.6	37.5	106	78.7	70.9	156	115.9	104.4	206	153.0	137.8	256	190,2	171.3
7	05.2	04.7	57	42.3	38.1	07	79.5	71.6	57	116.6	105.0	07	153.8	138.5	57	190.9	171.9
8	05.9	05.4	58	43.1	38.8	08	80.2	72.3	58	117.4	105.7	08	154.5	139.1	58	191.7	172.6
9	06.7	06.0	59	43.8	39.5	09	81.0	72.9	59	118.1	106.4	09	155.3	139,8	59	192.4	173.3
10	07.4	06.7	60	44.6	40.1	10	81.7	73.6	60	118.9	107.0	10	156,0	140,5	60	193.1	173.9
11	08.2	07.4	61	45.3	40.8	111	82.5	74.3	161	119.6	107.7	211	156.7	141.2	261	193.9	174,6
12	08.9	08.0	62	46.1	41.5	12	83.2	74,9	62	120.3	108.4	12	157.5	141.8	62	194.6	175.3
13	09.7	08.7	63	46.8	42.1	13	83.9	75.6	63	121.1	109.0	13	158.2	142.5	63	195.4	175.9
14	10.4	09.4	64	47.5	42.8	14	84.7	76.3	64	121.8	109.7	14	159.0	143.2	64	196.1	176.6
15	11.1	10.0	65	48.3	43.5	15	85.4	76.9	65	122.6	110.4	15	159.7	143.8	65	196.9	177.3
16	11.9	10.7	66	49.0	44.2	116	86.2	77.6	166	123.3	111.0	216	160.5	144.5	266	197.6	177.9
17	12.6	11.4	67	49.8	44.8	17	86.9	78.3	67	124.1	111.7	17	161.2	145,2	67	198.3	178.6
18	13.4	12.0	68	50.5	45.5	18	87.7	78,9	68	124.8	112.4	18	161.9	145.8	68	199.1	179.3
19	14.1	12.7	69	51.3	46.2	19	88.4	79.6	69	125.5	113.1	19	162.7	146.5	69	199.8	180.0
20	14.9	13.4	70	52.0	46.8	20	89.1	80.3	70	126.3	113,7	20	163.4	147.2	70	200.6	180.6
21	15.6	14.0	71	52.7	47.5	121	89.9	80.9	171	127.0	114.4	221	164.2	147.8	271	201.3	181.3
22	16.3	14,7	72	53.5	48.2	22	90.6	81.6	72	127.8	115.1	22	164.9	148.5	72	202,1	182.0
23	17.1	15.4	73	54.2	48.8	23	91.4	82.3	73	128.5	115.7	23	165.7	149.2	73	202.8	182.6
24	17.8	16.1	74	55.0	49.5	24	92.1	83.0	74	129.3	116.4	24	166.4	149.9	74	203.5	183.3
25	18.6	16.7	75	55.7	50.2	25	92.9	83.6	75	130.0	117.1	25	167.1	150.5	75	204.3	184.0
26	19.3	17.4	76	56.5	50.8	126	93.6	84.3	176	130.7	117.7	226	167.9	151.2	276	205.0	184.6
27	20.1	18.1	77	57.2	51.5	27	94.3	85.0	77	131.5	118.4	27	168.6	151.9	77	205.8	185.3
28	20.8	18.7	78	57.9	52.2	28	95.1	85.6	78	132.2	119.1	28	169.4	152.5	78	206.5	186.0
29	21.5	19.4	79	58.7	52.9	29	95.8	86.3	79	133.0	119.7	29	170.1	153.2	79	207,3	186,6
30	22.3	20.1	80	59,4	53.5	30	96.6	87.0	80	133.7	120.4	30	170.9	153.9	80	208.0	187.3
31	23.0	20.7	81	60.2	54.2	131	97.3	87,6	181	134.5	121.1	231	171.6	154.5	281	208,7	188.0
32	23.8	21.4	82	60.9	54.9	32	98.1	88.3	82	135.2	121.8	32	172.3	155,2	82	209.5	188.7
33	24.5	22.1	83	61.7	55.5	33	98.8	89.0	83	135.9	122.4	33	173.1	155.9	83	210.2	189.3
34	25.3	22.7	84	62.4	56.2	34	99.5	89,6	84	136.7	123.1	34	173.8	156.5	84	211.0	190.0
35	26.0	23.4	85	63.1	56.9	35	100.3	90.3	85	137,4	123.8	35	174.6	157.2	85	211.7	190.7
36	26.7	24.1	86	63.9	57.5	136	101.0	91.0	186	138.2	124.4	236	175.3	157.9	286	212.5	191.3
37	27.5	24.8	87	64,6	58.2	37	101.8	91.7	87	138.9	125.1	37	176.1	158.5	87	213.2	192.0
38	28.2	25.4	88	65.4	58.9	38	102.5	92.3	88	139.7	125.8	38	176.8	159.2	88	213,9	192.7
39	29.0	26.1	89	66,1	59.5	39	103.3	93.0	89	140.4	126.4	39	177.5	159.9	89	214.7	193.3
40	29.7	26,8	90	66.9	60.2	40	104.0	93.7	90	141.1	127.1	40	178.3	160.6	90	215.4	194.0
41	30.5	27.4	91	67.6	60.9	141	104.7	94,3	191	141.9	127.8	241	179.0	161.2	291	216.2	194.7
42	31,2	28.1	92	68,3	61.5	42	105.5	95.0	92	142.6	128.4	42	179.8	161.9	92	216,9	195.3
43	31.9	28.8	93	69.1	62.2	43	106.2	95.7	93	143.4	129.1	43	180.5	162.6	93	217.7	196.0
44	32.7	29.4	94	69.8	62.9	44	107.0	96,3	94	144.1	129.8	44	181.3	163.2	94	218.4	196.7
45	33.4	30.1	95	70.6	63.6	45	107.7	97.0	95	144.9	130.5	45	182.0	163.9	95	219.1	197.4
46	34.2	30.8	96	71.3	64.2	146	108.5	97,7	196	145.6	131,1	246	182.7	164,6	296	219.9	198.0
47	34.9	31.4	97	72.1	64.9	47	109.2	98.3	97	146,3	131.8	47	183.5	165.2	97	220,6	198.7
48	35.7	32.1	98	72.8	65.6	48	109.9	99.0	98	147.1	132.5	48	184.2	165.9	98	221.4	199.4
49	36.4	32.8	99	73.5	66,2	49	110.7	99.7	99	147.8	133.1	49	185,0	166.6	99	222.1	200.0
50	37.1	33.4	100	74.3	66.9	150	111.4	100.4	200	148.6	133.8	250	185.7	167.2	300	222.9	200.7
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.7	00.7	51	37.3	34.8	101	73.9	68.9	151	110.4	103.0	201	147.0	137.1	251	183.6	171.2
2	01.5	01.4	52	38.0	35.5	02	74.6	69.5	52	111.2	103.6	02	147.7	137.7	52	184.3	171.8
3	2.2	02.0	53	38.8	36.2	03	75.3	70.2	53	111.9	104.3	03	148.5	138.4	53	185.0	172.5
4	02.9	02.7	54	39.5	36.8	04	76.1	70.9	54	112.6	105.0	04	149.2	139.1	54	185.8	173.2
5	03.7	03.4	55	40.2	37.5	05	76.8	71.6	55	113.4	105.7	05	149.9	139.8	55	186.5	173.9
6	04.4	04.1	56	41.0	38.2	106	77.5	72.3	156	114.1	106.4	206	150.7	140.5	256	187.2	174.5
7	05.1	04.8	57	41.7	38.9	07	78.3	73.0	57	114.8	107.1	07	151.4	141.2	57	187.9	175.2
8	05.9	05.5	58	42.4	39.5	08	79.0	73.6	58	115.6	107.7	08	152.1	141.8	58	188.7	175.9
9	06.6	06.2	59	43.1	40.2	09	79.7	74.3	59	116.3	108.4	09	152.9	142.5	59	189.4	176.6
10	07.3	06.8	60	43.9	40.9	10	80.4	75.0	60	117.0	109.1	10	153.6	143.2	60	190.1	177.3
11	08.0	07.5	61	44.6	41.6	111	81.2	75.7	161	117.7	109.8	211	154.3	143.9	261	190.9	178.0
12	08.8	08.2	62	45.3	42.3	12	81.9	76.4	62	118.5	110.5	12	155.0	144.5	62	191.6	178.6
13	09.5	08.9	63	46.1	43.0	13	82.6	77.1	63	119.2	111.2	13	155.8	145.2	63	192.3	179.3
14	10.2	09.5	64	46.8	43.6	14	83.4	77.7	64	119.9	111.8	14	156.5	145.9	64	193.1	180.0
15	11.0	10.2	65	47.5	44.3	15	84.1	78.4	65	120.7	112.5	15	157.2	146.6	65	193.8	180.7
16	11.7	10.9	66	48.3	45.0	116	84.8	79.1	166	121.4	113.2	216	158.0	147.3	266	194.5	181.4
17	12.4	11.6	67	49.0	45.7	17	85.6	79.8	67	122.1	113.9	17	158.7	148.0	67	195.3	182.1
18	13.2	12.3	68	49.7	46.4	18	86.3	80.5	68	122.9	114.5	18	159.4	148.6	68	196.0	182.7
19	13.9	13.0	69	50.5	47.1	19	87.0	81.2	69	123.6	115.2	19	160.2	149.3	69	196.7	183.4
20	14.6	13.6	70	51.2	47.7	20	87.8	81.8	70	124.3	115.9	20	160.9	150.0	70	197.5	184.1
21	15.4	14.3	71	51.9	48.4	121	88.5	82.5	171	125.1	116.6	221	161.6	150.7	271	198.2	184.8
22	16.1	15.0	72	52.7	49.1	22	89.2	83.2	72	125.8	117.3	22	162.4	151.4	72	198.9	185.5
23	16.8	15.7	73	53.4	49.8	23	90.0	83.9	73	126.5	118.0	23	163.1	152.1	73	199.7	186.2
24	17.6	16.4	74	54.1	50.5	24	90.7	84.5	74	127.3	118.6	24	163.8	152.7	74	200.4	186.8
25	18.3	17.1	75	54.9	51.2	25	91.4	85.2	75	128.0	119.3	25	164.6	153.4	75	201.1	187.5
26	19.0	17.7	76	55.6	51.8	126	92.1	85.9	176	128.7	120.0	226	165.3	154.1	276	201.9	188.2
27	19.7	18.4	77	56.3	52.5	27	92.9	86.6	77	129.4	120.7	27	166.0	154.8	77	202.6	188.9
28	20.5	19.1	78	57.0	53.2	28	93.6	87.3	78	130.2	121.4	28	166.7	155.5	78	203.3	189.5
29	21.2	19.8	79	57.8	53.9	29	94.3	88.0	79	130.9	122.1	29	167.5	156.2	79	204.0	190.2
30	21.9	20.5	80	58.5	54.5	30	95.1	88.6	80	131.6	122.7	30	168.2	156.8	80	204.8	190.9
31	22.7	21.1	81	59.2	55.2	131	95.8	89.3	181	132.4	123.4	231	168.9	157.5	281	205.5	191.6
32	23.4	21.8	82	60.0	55.9	32	96.5	90.0	82	133.1	124.1	32	169.7	158.2	82	206.2	192.3
33	24.1	22.5	83	60.7	56.6	33	97.3	90.7	83	133.8	124.8	33	170.4	158.9	83	207.0	193.0
34	24.9	23.2	84	61.4	57.3	34	98.0	91.4	84	134.6	125.5	34	171.1	159.5	84	207.7	193.6
35	25.6	23.9	85	62.2	58.0	35	98.7	92.1	85	135.3	126.2	35	171.9	160.2	85	208.4	194.3
36	26.3	24.5	86	62.9	58.6	136	99.5	92.7	186	136.0	126.8	236	172.6	160.9	286	209.2	195.0
37	27.1	25.2	87	63.6	59.3	37	100.2	93.4	87	136.8	127.5	37	173.3	161.6	87	209.9	195.7
38	27.8	25.9	88	64.4	60.0	38	100.9	94.1	88	137.5	128.2	38	174.1	162.3	88	210.6	196.4
39	28.5	26.6	89	65.1	60.7	39	101.7	94.8	89	138.2	128.9	39	174.8	163.0	89	211.4	197.1
40	29.3	27.3	90	65.8	61.4	40	102.4	95.5	90	139.0	129.5	40	175.5	163.6	90	212.1	197.7
41	30.0	28.0	91	66.6	62.1	141	103.1	96.2	191	139.7	130.2	241	176.3	164.3	291	212.8	198.4
42	30.7	28.6	92	67.3	62.7	42	103.9	96.8	92	140.4	130.9	42	177.0	165.0	92	213.6	199.1
43	31.4	29.3	93	68.0	63.4	43	104.6	97.5	93	141.1	131.6	43	177.7	165.7	93	214.3	199.8
44	32.2	30.0	94	68.7	64.1	44	105.3	98.2	94	141.9	132.3	44	178.4	166.4	94	215.0	200.5
45	32.9	30.7	95	69.5	64.8	45	106.0	98.9	95	142.6	133.0	45	179.2	167.1	95	215.7	201.2
46	33.6	31.4	96	70.2	65.5	146	106.8	99.5	196	143.3	133.6	246	179.9	167.7	296	216.5	201.8
47	34.4	32.1	97	70.9	66.2	47	107.5	100.2	97	144.1	134.3	47	180.6	168.4	97	217.2	202.5
48	35.1	32.7	98	71.7	66.8	48	108.2	100.9	98	144.8	135.0	48	181.4	169.1	98	218.0	203.2
49	35.8	33.4	99	72.4	67.5	49	109.0	101.6	99	145.5	135.7	49	182.1	169.8	99	218.7	203.9
50	36.6	34.1	100	73.1	68.2	150	109.7	102.3	200	146.3	136.4	250	182.8	170.5	300	219.4	204.6
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00,7	00,7	51	36.7	35.4	101	72,6	70.2	151	108.6	104.9	201	144.6	139.6	251	180.5	174,3
2	01.4	01,4	52	37.4	36.1	02	73.4	70.8	52	109.3	105.6	02	145.3	140.3	52	181.3	175.0
3	02.2	02.1	53	38.1	36.8	03	74.1	71.5	53	110.1	106.3	03	146.0	141.0	53	182.0	175.7
4	02.9	02.8	54	38.8	37.5	04	74.8	72.2	54	110.8	107.0	04	146.7	141.7	54	182.7	176.4
5	03.6	03.5	55	39.6	38.2	05	75.5	72.9	55	111.5	107.7	05	147.5	142.4	55	183.4	177.1
6	04.3	04,2	56	40.3	38.9	106	76.2	73.6	156	112.2	108.4	206	148.2	143.1	256	184.1	177.8
7	05.0	04,9	57	41,0	39.6	07	77.0	74.3	57	112.9	109.1	07	148.9	143.8	57	184.9	178.5
8	05.8	05.6	58	41.7	40.3	08	77.7	75.0	58	113.6	109.7	08	149.6	144,5	58	185.6	179,2
9	06.5	06 3	59	42.4	41.0	09	78.4	75.7	59	114.4	110,4	09	150.3	145.2	59	186.3	179.9
10	07.2	06,9	60	43.2	41.7	10	79.1	76.4	60	115.1	111.1	10	151.1	145.9	60	187.0	180,6
11	07.9	07.6	61	43.9	42.4	111	79,8	77.1	161	115.8	111,8	211	151.8	146.6	261	187.7	181,3
12	08.6	08,3	62	44.6	43.1	12	80,6	77.8	62	116.5	112.5	12	152.5	147.3	62	188.5	182.0
13	09.4	09.0	63	45.3	43.8	13	81.3	78.5	63	117.2	113.2	13	153.2	147.9	63	189.2	182.7
14	10.1	09.7	64	46.0	44.5	14	82.0	79.2	64	118.0	113,9	14	153.9	148.6	64	189 9	183.4
15	10.8	10.4	65	46.8	45.1	15	82,7	79.9	65	118.7	114.6	15	154.6	149.3	65	190.6	184.1
16	11.5	11.1	66	47.5	45.8	116	83.4	80.6	166	119.4	115,3	216	155.4	150,0	266	191.3	184.8
17	12.2	11.8	67	48.2	46.5	17	84.2	81 3	67	120.1	116.0	17	156.1	150.7	67	192.1	185.5
18	12.9	12.5	68	48,9	47.2	18	84.9	82,0	68	120.8	116.7	18	156.8	151.4	68	192.8	186.1
19	13.7	13.2	69	49.6	47.9	19	85.6	82.7	69	121.6	117,4	19	157.5	152.1	69	193.5	186.8
20	14.4	13 9	70	50.4	48.6	20	86.3	83.4	70	122.3	118.1	20	158.2	152.8	70	194 2	187.5
21	15 1	14,6	71	51.1	49.3	121	87.0	84.0	171	123.0	118.8	221	159.0	153,5	271	194 9	188.2
22	15.8	15.3	72	51.8	50.0	22	87.8	84.7	72	123.7	119.5	22	159,7	154.2	72	195,6	188.9
23	16.5	16.0	73	52.5	50.7	23	88.5	85.4	73	124.4	120.2	23	160.4	154.9	73	196.4	189.6
24	17.3	16.7	74	53 2	51.4	24	89.2	86.1	74	125.2	120.9	24	161.1	155.6	74	197.1	190.3
25	18 0	17.4	75	53,9	52.1	25	89 9	86 8	75	125.9	121.6	25	161.8	156.3	75	197.8	191.0
26	18 7	18.1	76	54.7	52.8	126	90.6	87.5	176	126.6	122.2	226	162.6	157.0	276	198.5	191,7
27	19.4	18.8	77	55.4	53.5	27	91 4	88,2	77	127.3	122.9	27	163.3	157,7	77	199.2	192,4
28	20 1	19.4	78	56.1	54.2	28	92,1	88.9	78	128.0	123.6	28	164.0	158.4	78	200.0	193.1
29	20,9	20,1	79	56.8	54.9	29	92.8	89.6	79	128,8	124.3	29	164.7	159.1	79	200.7	193.8
30	21.6	20,8	80	57.5	55.6	30	93.5	90.3	80	129 5	125.0	30	165.4	159.8	80	201.4	194.5
31	22.3	21.5	81	58.3	56.3	131	94.2	91.0	181	130.2	125.7	231	166,2	160.4	281	202.1	195.2
32	23.0	22.2	82	59.0	57.0	32	94,9	91.7	82	130.9	126.4	32	166 9	161.1	82	202.8	195.9
33	23.7	22.9	83	59.7	57.7	33	95.7	92.4	83	131.6	127.1	33	167.6	161.8	83	203.6	196.6
34	24,5	23.6	84	60 4	58.3	34	96.4	93.1	84	132.4	127.8	34	168 3	162.5	84	204.3	197.3
35	25.2	24.3	85	61.1	59.0	35	97.1	93.8	85	133.1	128,5	35	169.0	163.2	85	205.0	198.0
36	25.9	25.0	86	61.9	59.7	136	97.8	94.5	186	133,8	129.2	236	169.8	163.9	286	205.7	198.7
37	26.6	25.7	87	62.6	60.4	37	98.5	95.2	87	134.5	129.9	37	170.5	164.6	87	206.4	199,3
38	27.3	26.4	88	63.3	61.1	38	99.3	95.9	88	135.2	130.6	38	171.2	165.3	88	207.2	200.0
39	28.1	27,1	89	64.0	61,8	39	100.0	96.5	89	135.9	131.3	39	171.9	166.0	89	207,9	200.7
40	28.8	27.8	90	64.7	62.5	40	100.7	97.2	90	136.7	132,0	40	172.6	166.7	90	208.6	201.4
41	29 5	28,5	91	65.5	63.2	141	101.4	97.9	191	137,4	132.7	241	173.4	167.4	291	209.3	202.1
42	30.2	29 2	92	66.2	63.9	42	102.1	98.6	92	138.1	133.4	42	174.1	168.1	92	210.0	202.8
43	30 9	29.9	93	66.9	64.6	43	102.9	99.3	93	138.8	134.1	43	174.8	168.8	93	210.8	203.5
44	31.6	30.6	94	67.6	65.3	44	103.6	100.0	94	139.5	134.8	44	175.5	169.5	94	211.5	204,2
45	32.4	31.3	95	68.3	66.0	45	104.3	100.7	95	140.3	135,4	45	176.2	170.2	95	212,2	204.9
46	33.1	32,0	96	69.1	66.7	146	105.0	101.4	196	141.0	136.1	246	176.9	170.9	296	212.9	205.6
47	33.8	32.6	97	69.8	67.4	47	105.7	102.1	97	141,7	136.8	47	177.7	171.6	97	213.6	206.3
48	34.5	33.3	98	70.5	68.1	48	106,5	102.8	98	142.4	137.5	48	178.4	172,3	98	214.4	207.0
49	35.2	34.0	99	71.2	68.8	49	107.2	103.5	99	143.1	138.2	49	179.1	173.0	99	215.1	207.7
50	36.0	33 7	100	71.9	69.5	150	107.9	104.2	200	143.9	138.9	250	179.8	173.6	300	215.8	208.4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat.	Dep	Diff	Lat	Dep
1	00.7	00.7	51	36.1	36.1	101	71.4	71.4	151	106.8	106.8	201	142.1	142.1	251	177.5	177.5
2	01.4	01.4	52	36.8	36.8	02	72.1	72.1	52	107.5	107.5	02	142.8	142.8	52	178.2	178.2
3	02.1	02.1	53	37.5	37.5	03	72.8	72.8	53	108.2	108.2	03	143.5	143.5	53	178.9	178.9
4	02.8	02.8	54	38.2	38.2	04	73.5	73.5	54	108.9	108.9	04	144.2	144.2	54	179.6	179.6
5	03.5	03.5	55	38.9	38.9	05	74.2	74.2	55	109.6	109.6	05	144.9	144.9	55	180.3	188.3
6	04.2	04.2	56	39.6	39.6	106	74.9	74.9	156	110.3	110.3	206	145.7	145.7	256	181.0	181.0
7	04.9	04.9	57	40.3	40.3	07	75.7	75.7	57	111.0	111.0	07	146.4	146.4	57	181.7	181.7
8	05.7	05.7	58	41.0	41.0	08	76.4	76.4	58	111.7	111.7	08	147.1	147.1	58	182.4	182.4
9	06.4	06.4	59	41.7	41.7	09	77.1	77.1	59	112.4	112.4	09	147.8	147.8	59	183.1	183.1
10	07.1	07.1	60	42.4	42.4	10	77.8	77.8	60	113.1	113.1	10	148.5	148.5	60	183.8	183.8
11	07.8	07.8	61	43.1	43.1	111	78.5	78.5	161	113.8	113.8	211	149.2	149.2	261	184.5	184.5
12	08.5	08.5	62	43.8	43.8	12	79.2	79.2	62	114.5	114.5	12	149.9	149.9	62	185.3	185.3
13	09.2	09.2	63	44.5	44.5	13	79.9	79.9	63	115.3	115.3	13	150.6	150.6	63	186.0	186.0
14	09.9	09.9	64	45.3	45.3	14	80.6	80.6	64	116.0	116.0	14	151.3	151.3	64	186.7	186.7
15	10.6	10.6	65	46.0	45.0	15	81.3	81.3	65	116.7	116.7	15	152.0	152.0	65	187.4	187.4
16	11.3	11.3	66	46.7	46.7	116	82.0	82.0	166	117.4	117.4	216	152.7	152.7	266	188.1	188.1
17	12.0	12.0	67	47.4	47.4	17	82.7	82.7	67	118.1	118.1	17	153.4	153.4	67	188.8	188.8
18	12.7	12.7	68	48.1	48.1	18	83.4	83.4	68	118.8	118.8	18	154.1	154.1	68	189.5	189.5
19	13.4	13.4	69	48.8	48.8	19	84.1	84.1	69	119.5	119.5	19	154.8	154.8	69	190.2	190.2
20	14.1	14.1	70	49.5	49.5	20	84.8	84.8	70	120.2	120.2	20	155.6	155.6	70	190.9	190.9
21	14.8	14.8	71	50.2	50.2	121	85.6	85.6	171	120.9	120.9	221	156.3	156.3	271	191.6	191.6
22	15.6	15.6	72	50.9	50.9	22	86.3	86.3	72	121.6	121.6	22	157.0	157.0	72	192.3	192.3
23	16.3	16.3	73	51.6	51.6	23	87.0	87.0	73	122.3	122.3	23	157.7	157.7	73	193.0	193.0
24	17.0	17.0	74	52.3	52.3	24	87.7	87.7	74	123.0	123.0	24	158.4	158.4	74	193.7	193.7
25	17.7	17.7	75	53.0	53.0	25	88.4	88.4	75	123.7	123.7	25	159.1	159.1	75	194.4	194.4
26	18.4	18.4	76	53.7	53.7	126	89.1	89.1	176	124.4	124.4	226	159.8	159.8	276	195.2	195.2
27	19.1	19.1	77	54.4	54.4	27	89.8	89.8	77	125.2	125.2	27	160.5	160.5	77	195.9	195.9
28	19.8	19.8	78	55.2	55.2	28	90.5	90.5	78	125.9	125.9	28	161.2	161.2	78	196.6	196.6
29	20.5	20.5	79	55.9	55.9	29	91.2	91.2	79	126.6	126.6	29	161.9	161.9	79	197.3	197.3
30	21.2	21.2	80	56.6	56.6	30	91.9	91.9	80	127.3	127.3	30	162.6	162.6	80	198.0	198.0
31	21.9	21.9	81	57.3	57.3	131	92.6	92.6	181	128.0	128.0	231	163.3	163.3	281	198.7	198.7
32	22.6	22.6	82	58.0	58.6	32	93.3	93.3	82	128.7	128.7	32	164.0	164.0	82	199.4	199.4
33	23.3	23.3	83	58.7	58.7	33	94.0	94.0	83	129.4	129.4	33	164.7	164.7	83	200.1	200.1
34	24.0	24.0	84	59.4	59.4	34	94.7	94.7	84	130.1	130.1	34	165.5	165.5	84	200.8	200.8
35	24.7	24.7	85	60.1	60.1	35	95.5	95.5	85	130.8	130.8	35	166.2	166.2	85	201.5	201.5
36	25.5	25.5	86	60.8	60.8	136	96.2	96.2	186	131.5	131.5	236	166.9	166.9	286	202.2	202.2
37	26.2	26.2	87	61.5	61.5	37	96.9	96.9	87	132.2	132.2	37	167.6	167.6	87	202.9	202.9
38	26.9	26.9	88	62.2	62.2	38	97.6	97.9	88	132.9	132.9	38	168.3	168.3	88	203.6	203.6
39	27.6	27.6	89	62.9	62.9	39	98.3	98.3	89	133.6	133.6	39	169.0	169.0	89	204.3	204.3
40	28.3	28.3	90	63.6	63.6	40	99.0	99.0	90	134.3	134.3	40	169.7	169.7	90	205.1	205.1
41	29.0	29.0	91	64.3	64.3	141	99.7	99.7	191	135.1	135.1	241	170.4	170.4	291	205.8	205.8
42	29.7	29.7	92	65.1	65.1	42	100.4	100.4	92	135.8	135.8	42	171.1	171.1	92	206.5	206.5
43	30.4	30.4	93	65.8	65.8	43	101.1	101.1	93	136.5	136.5	43	171.8	171.8	93	207.2	207.2
44	31.1	31.1	94	66.5	66.5	44	101.8	101.8	94	137.2	137.2	44	172.5	172.5	94	207.9	207.9
45	31.8	31.8	95	67.2	67.2	45	102.5	102.5	95	137.9	137.9	45	173.2	173.2	95	208.6	208.6
46	32.5	32.5	96	67.9	67.9	146	103.2	103.2	196	138.6	138.6	246	173.9	173.9	296	209.3	209.3
47	33.2	33.2	97	68.6	68.6	47	103.9	103.9	97	139.3	139.3	47	174.6	174.6	97	210.0	210.0
48	33.9	33.9	98	69.3	69.3	48	104.6	104.6	98	140.0	140.0	48	175.4	175.4	98	210.7	210.7
49	34.6	34.6	99	70.0	70.0	49	105.4	105.4	99	140.7	140.7	49	176.1	176.1	99	211.4	211.4
50	35.4	35.4	100	70.7	70.7	150	106.1	106.1	200	141.4	141.4	250	176.8	176.8	300	212.1	212.1
Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat

Number for the Readier finding the Courses in the foregoing Tables of Difference of Latitude and Departure.

Dist. and Diff. of Lat.				Dist. and Departure				Diff. of Lat. and Dep.			
Num	Deg.	Num	Deg.	Num	Deg.	Num	Deg.	Num	Deg.	Num	Deg.
1000	1	17	89	17	1	1000	89	2	1	5882	89
999	2	35	88	35	2	999	88	3	2	2855	88
998	3	52	87	52	3	998	87	5	3	1908	87
997	4	70	86	70	4	997	86	7	4	1432	86
996	5	87	85	87	5	996	85	9	5	1145	85
995	6	105	84	105	6	995	84	10	6	950	84
993	7	122	83	122	7	993	83	12	7	816	83
990	8	139	82	139	8	990	82	14	8	711	82
988	9	156	81	156	9	988	81	16	9	632	81
985	10	173	80	173	10	985	80	18	10	568	80
982	11	191	79	191	11	982	79	19	11	515	79
978	12	208	78	208	12	978	78	21	12	470	78
974	13	225	77	225	13	974	77	23	13	433	77
970	14	242	76	242	14	970	76	25	14	401	76
966	15	259	75	259	15	966	75	27	15	373	75
961	16	276	74	276	16	961	74	29	16	349	74
956	17	292	73	292	17	956	73	30	17	328	73
951	18	309	72	309	18	951	72	32	18	308	72
945	19	326	71	326	19	945	71	34	19	290	71
940	20	342	70	342	20	940	70	36	20	275	70
934	21	358	69	358	21	934	69	38	21	260	69
927	22	375	68	375	22	927	68	40	22	248	68
921	23	391	67	391	23	921	67	42	23	236	67
914	24	407	66	407	24	914	66	45	24	225	66
906	25	423	65	423	25	906	65	47	25	214	65
899	26	438	64	438	26	899	64	49	26	205	64
891	27	454	63	454	27	891	63	51	27	196	63
883	28	470	62	470	28	883	62	53	28	188	62
875	29	485	61	485	29	875	61	55	29	180	61
866	30	500	60	500	30	866	60	58	30	173	60
857	31	515	59	515	31	857	59	60	31	166	59
848	32	530	58	530	32	848	58	62	32	160	58
839	33	545	57	545	33	839	57	65	33	154	57
829	34	559	56	559	34	829	56	67	34	148	56
819	35	574	55	574	35	819	55	70	35	143	55
809	36	588	54	588	36	809	54	73	36	138	54
799	37	602	53	602	37	799	53	75	37	133	53
788	38	616	52	616	38	788	52	78	38	128	52
777	39	629	51	629	39	777	51	81	39	123	51
766	40	643	50	643	40	766	50	84	40	119	50
755	41	656	49	656	41	755	49	87	41	115	49
743	42	669	48	669	42	743	48	90	42	111	48
731	43	682	47	682	43	731	47	93	43	107	47
719	44	695	46	695	44	719	46	96	44	103	46
707	45	707	45	707	45	707	45	100	45	100	45

The Use of the Tables of Difference of LATITUDE *and* DEPARTURE, *in Working any of the Cases of* PLAIN - SAILING.

IN these Tables the Course if less than 4 Points, or 45 Degrees, will be found at the Top of the Tables; but if it is more than 4 Points, or 45 Degrees, it will be found at the Bottom of the Tables; and on every Side there are Six Columns for the Distances, mark'd Dist. which contain 50 Miles in each Column, the First beginning at 1, and ending at 50; the Second beginning at 51, and ending at 100, and so on to 300 Miles Distance; and to each of these Columns of Distance there belongs two other Columns, shewing the Difference of Latitude and Departure to any of them Distances, mark'd Lat. and Dep. in which you are to observe, that if your Course be found at the Top of the Tables, then you are to take the Difference of Latitude and Departure as they are mark'd at Top; but if your Course be found at Bottom, then you must take them as they are mark'd at Bottom.

Note, In any Case where the Course is given in Points, half Points, or Quarters, you must make use of the following Tables of Difference of Latitude and Departure, which are calculated for Points, &c. but where the Course is given in Degrees, or where it is not given at all, you must make use of the foregoing Tables of Difference of Latitude and Departure.

Plain Sailing, Case the First.

Course and Distance being given, to find the Difference of Latitude and Departure.

R U L E.

Find your Course as before directed, and look in some of the Distance Columns belonging to that Course, for your Distance; the Difference of Latitude and Departure answering to that Distance, will be the Difference of Latitude and Departure required.

Example

EXAMPLE I.

A Ship fails NNE. 136 Miles, I demand her Difference of Latitude and Departure.

Having found my Courfe, which is 2 Points in the Table for Points, I find my Diftance 136 in the third Column for Diftances, and right againft that, I find 125.7 Tenths for my Difference of Latitude, and 52.0 Tenths for my Departure.

Note, In all Cafes whatfoever, if the given Side or Sides be in Miles, then the Sides found by the Table, will alfo be in Miles.; but if the given Side or Sides be Leagues, then the Sides found will alfo be Leagues.

Plain-Sailing, Cafe the Second.

Courfe and Difference of Latitude being given, to find the Diftance and Departure.

RULE.

Find your Courfe as before, then look in fome of the Difference of Latitude Columns belonging to that Courfe, for your Difference of Latitude, the Diftance and Departure anfwering to that Difference of Latitude, will be the Diftance and Departure required.

EXAMPLE.

A Ship fails S. 48 Degrees 00 Minutes E. till her Difference of Latitude be 164 Leagues, I demand her Diftance and Departure?

Having found my Courfe 48 Degrees at the Bottom of the Tables, I look in fome of the Columns mark'd Latitude at Bottom, for the neareft I can find to my Difference of Latitude, which is 163.9, and anfwering to that, I find for my Diftance 245 Leagues, and for my Departure 182.0 Leagues.

Plain-Sailing, Cafe the Third.

Courfe and Departure being given, to find the Diftance and Difference of Latitude.

RULE.

Find your Courfe as before, then look in fome of the Departure Columns belonging to that Courfe, for your Departure, the Diftance and

and Difference of Latitude anfwering to that Departure, will be the Diftance and Difference of Latitude required.

EXAMPLE.

A Ship fails SW. by S. till her Departure be 165 Miles : I demand her Diftance and Difference of Latitude.

Having found the Courfe, which is 3 Points at the Top of the Table for Points, I look in fome of the Columns mark'd *Dep.* at Top, for the neareft I can find to my Departure, which is 165.0, and anfwering to that·I find my Diftance 297 Miles, and for my Difference of Latitude 246.9 Miles.

Note, In any Cafe where the given Side is too big to be found in the Tables, then divide it by 2, 3, 4, or any other Number that will make it fmall enough to be found, and then the required Sides, when found, muft be multiplied by the fame Number ; but the Courfe muft never be multiplied nor divided.

Plain Sailing, Cafe the Fourth.

Diftance and Difference of Latitude being given, to find the Courfe and Departure.

RULE.

Put two Cyphers to the Difference of Latitude, and divide it by the Diftance (without taking any Notice of the Comma that ftands between the Miles and Tenths) and note the Quotient : Then look in the Table of Numbers (at the end of the Tables of Difference of Latitude and Departure) in the Columns belonging to Diftance and Difference of Latitude, for the neareft Number to that Quotient, the Degrees anfwering to that Number will be the Courfe. Then to find the Departure, proceed as in Cafe the firft. But here you are to obferve, that in all Cafes where the Courfe is to be found by the Table of Numbers, the Difference of Latitude and Departure are fuppofed always to be in Miles and Tenths, as for Example, 112,4 Tenths, 907,2 Tenths, &c. fo that if at any Time either of them fhould be given in Miles without Tenths, as 117, 124, &c. You are then to put a Cypher to them to fupply the Place of Tenths, and call them 117,0 Tenths, 124,0 Tenths, &c. and then put two Cyphers more according to your other Rules, to find the Number for the Courfe.

<center>H</center>

<div align="right">*Example*</div>

E X A M P L E.

A Ship fails between the North and Weft, till her Diftance is 276 Miles, and her Difference of Latitude 211.4 Miles, I demand her Courfe and Departure.

Having put two Cyphers to the Difference of Latitude, which makes it 211400, I divide it by the Diftance 276, and find the Quotient be 766 nearly, then I look in the Table of Numbers (under *Dift.* and *Diff.* of *Lat.*) for the neareft to it which is 766, againft which I find 40 Degrees for my Courfe, and with that Courfe and my given Diftance, I find my Departure to be 177.4 Miles, (by Cafe the firft.)

Plain Sailing, Cafe the Fifth.

Diftance and Departure being given, to find the Courfe and Difference of Latitude.

R U L E.

Put two Cyphers to the Departure, then divide it by Diftance, and look in the Table of Numbers, in the Columns belonging to Diftance and Departure, for the neareft Number to the Quotient; the Degrees anfwering to that Number will be the Courfe, and then the Difference of Latitude may be found, (by Cafe the Firft.)

E X A M P L E.

A Ship fails between the South and Eaft, till her Diftance is 546 Miles, and her Departure 412 Miles, I demand her Courfe and the Difference of Latitude.

Having put a Cypher to my Departure to fupply the Place of Tenths, which makes it 412.0 and then two more Cyphers according to the Rule for this Cafe, which makes it 412000, I divide it by the Diftance 546, and find the Quotient to be 754, againft the neareft to which, *viz.* 755 in the Table of Numbers under *Dift.* and *Dep.* I find 49 Degrees for my Courfe; and with that Courfe and my Diftance (divided by 2, becaufe it is too big to be found in the Tables) I find a Difference of Latitude 179,1 (by Cafe the Firft) which multiplied by 2, becaufe the Diftance was divided by 2, gives 358,2 for my whole Difference of Latitude.

<div align="right">*Plain*</div>

Plain Sailing, Cafe the Sixth.

Difference of Latitude and Departure being given, to find the Courfe and Diftance.

R U L E.

Put two Cyphers to the Departure, and divide it by the Difference of Latitude, then look in the Table of Numbers, in the Columns belonging to Difference of Latitude and Departure, for the neareft Number to the Quotient, the Degrees anfwering to that Number will be the Courfe. Then to find the Diftance proceed as in Cafe the 2*d*, or 3*d*.

E X A M P L E.

A Ship fails between the North and Weft, till her Difference of Latitude is 184 Miles, and her Departure 115 Miles, I demand her Courfe and Diftance.

Having fupplied the Place of Tenths in both thefe Sides, which makes them 184.0, and 115.0, I then put two Cyphers to the Departure which makes it 115000, and divide it by the Difference of Latitude 1840, and find the Quotient to be 62; againft which in the Table of Numbers, under Difference of Latitude and Departure, I find 32 Degrees for my Courfe, and with that Courfe, and my Difference of Latitude, (by Cafe the Second) or with that Courfe, and my Departure (by Cafe the Third) I find my Diftance to be 217 Miles.

Note, By thefe foregoing Rules for *Plain Sailing*, you may work any Cafe in Traverfe, Mercator, Parallel and Middle Latitude, only by fuppofing the Names of the Sides and Angles in Mercator, Parallel and Middle Latitude, to be changed into the Sides and Angles they reprefent in *Plain Sailing*.

T R A V E R S E.

The feveral Courfes and Diftances a Ship fails being given, to find what direct Courfe and Diftance fhe has made good, and her Difference of Latude and Departure.

R U L E.

Make a Table as on the following Side, and fet down in it your feveral Courfes and Diftances, then by the Rule, for Cafe the Firft of *Plain Sailing*, find the Difference of Latitude and Departure to each

of the Courfes and Diftances, and fet them down in the Table, oppofite to the Courfes they belong to, taking Notice that the Difference of Latitude muft always be fet in the North Column, if the Courfe be Northerly, and in the South Column if the Courfe be Southerly; and the Departure muft always be put in the Eaft Column, if the Courfe be Eafterly, and in the Weft Column, if it be Wefterly.

Then add up all your Columns of North, South, Eaft and Weft feparately, and fet down their refpective Sums at the Bottom of each Column, and if you have but one Column of Northing or Southing, and but one of Eafting or Wefting, then their Sums will be the Difference of Latitude and Departure of the fame Name with the Column they ftand under; that is, the Difference of Latitude will be Northerly, if it ftands under the North Column; and the Departure Eafterly, if it ftands under the Eaft Column, &c.

But if you have Numbers in all the Columns of North, South, Eaft, and Weft, then take the Sums of the North and South Columns, and fubtract the leffer from the greater, the Remainder will be the Difference of Latitude, of the fame Name with the greater of them: Alfo do the fame with the Sums of the Eaft and Weft Columns for the Departure; then with that Difference of Latitude and Departure, find the Courfe and Diftance, as in Cafe the Sixth, *of Plain Sailing.*

E X A M P L E.

A Ship fails the following Courfes, viz. SSW. 54 Miles, W. by S. 39, NW. by N. 40, NE. by E. 69, and NNW. 60 Miles; I demand her direct Courfe, Diftance, Difference of Latitude and Departure.

Courfes	Dift.	Diff. of Lat.		Departure	
		North	South	Eaft	Weft
S S W	54		49.9		20.7
W by S	39		7.6		38.2
NW by N	40	33.3			22.2
NE by E	69	38.3		57.4	
N N W	60	55.4			23.0
		127.0	57.5	57.4	104.1
		57.5			57.4
Diff. Lat N.ly		69.5	DepW.erly		46.7

Courfe N. 34 00 W. Diftance 84 Miles.

Note, 'Tis by this Method that the Difference of Latitude and Departure are found in working any Days Work at Sea; and from the Difference of Latitude and Departure fo found, we find the Courfe, Diftance and Latitude by Dead - Reckoning, Meridian Diftance and Longitude made; all which will be further explained in the Rules for keeping a Journal.

To Work any Right-angled Triangle, by the foregoing Rules for PLAIN SAILING.

In all Right-angled Triangles that are to be worked by the Tables, you are to fuppofe four Things, *viz.* Courfe, Diftance, Difference of Latitude and Departure, two of which muft always be given to find the other two : Then as thefe Rules are wrote for working of *Plain Sailing*, if you would work any other Sailing by them, as Mercator, Parallel, Middle Latitude, or any other Right-angled Triangle, you muft fuppofe the Sides and Angles of that Triangle to be called by the fame Name that the Sides and Angles they reprefent in *Plain Sailing* are called by, and then work them as if it was a Cafe in *Plain Sailing*.

As for Example. The North and South Line, is any Right-angled Triangle (but whatever Name it is called in the Sailing it belongs to) muft be work'd as if it was Difference of Latitude in *Plain Sailing :* The Eaft and Weft Line as Departure ; the long Side as Diftance, and the Angle oppofite to the Eaft and Weft Line as Courfe. *For Example fee the following Figures.*

Figure for *Mercator's Sailing.*

Difference of Longitude to be work'd as Departure.

Figure

Diff: of Long: to be work'd as Distance

Co: Lat: to be work'd as Course

= Lattitude
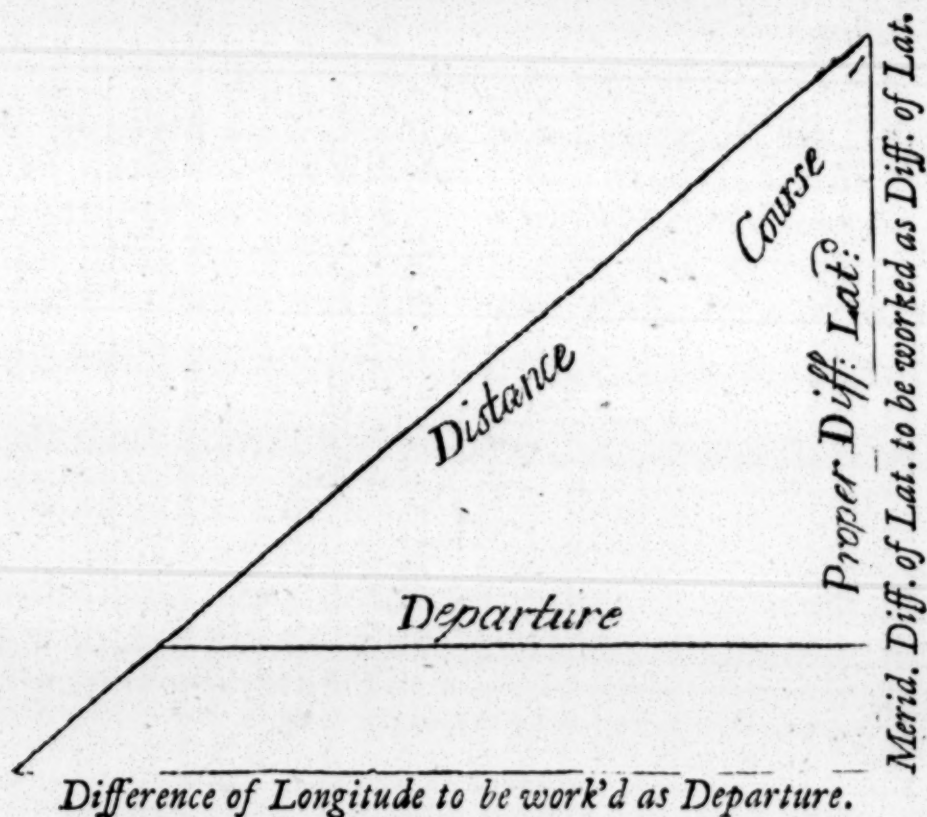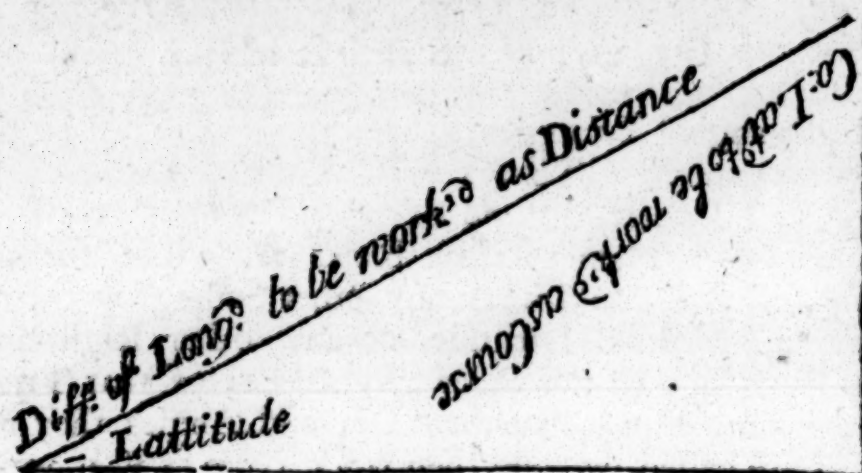
Distance to be work'd as Departure.

Figure for *Middle Latitude Sailing.*

Distance

Course

Diff. Lat:

Departure

Diff: Lat:

Middle Lat:

Distance to be work'd as Course

Diff: of Long: to be worked as Distance

Comp: Middle Lat: to be work'd as Course
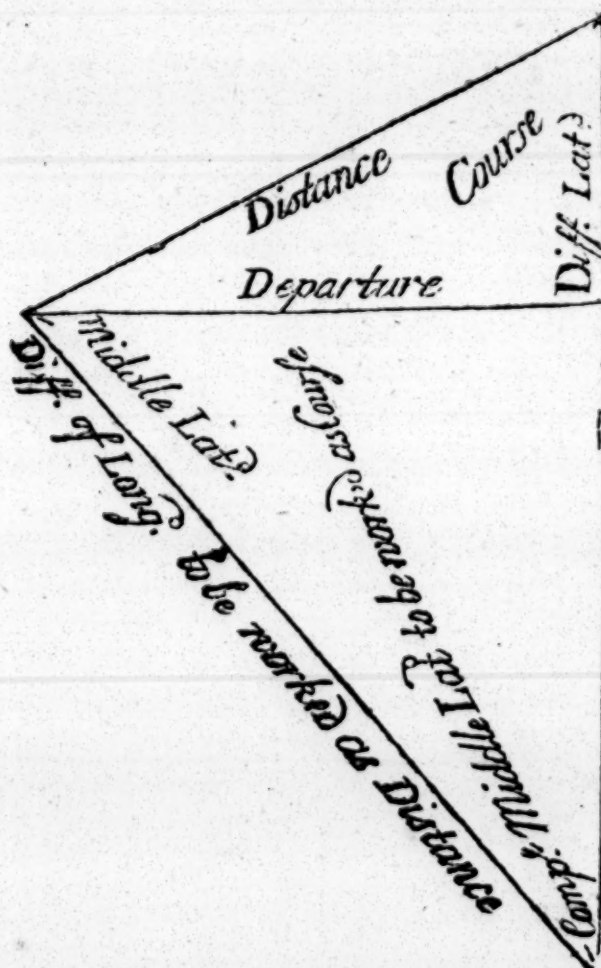
Mercator's Sailing, Caſe the Firſt.

The Latitudes and Longitudes of any two Places being given, to find what Courſe and Diſtance a Ship muſt Sail from one Place to the other.

R U L E.

Having the two Latitudes and two Longitudes given ; find the proper Difference of Latitude, the Meridional Difference of Latitude, and the Difference of Longitude, (as by the Rules for that Purpoſe) then with the Meridional Difference of Latitude, and the Difference of Longitude (taken as Difference of Latitude and Departure) find the Courſe by the Sixth Caſe of *Plain Sailing*, and with that Courſe, and the proper Difference of Latitude, find the Diſtance by Caſe the Second of *Plain Sailing*.

E X A M P L E.

What Courſe and Diſtance muſt a Ship ſail from a Place in Latitude 50.00 North, and Longitude, 03.10 Weſt, to a Place in Latitude of 17.10 North, and Longitude 59.11 Weſt ?

Lat. ſail'd from —— 50 00 N.	Mirid. Parts	Long. ſail'd from 03 10 W·
Lat. bound to ——— 17 10 N.	3474	Long. bound to 59 11 W·
32 50	1046	56 01
60	2428	60
Proper Diff. of Lat. 1970 Miles	Mer. Diff. of Lat.	Diff. of Long. 3361 Miles

Having put two Cyphers to the Difference of Longitude, and divided it by the Meridional Difference of Latitude, I find the Quotient to be 138, againſt which in the Table of Numbers (under Difference of Latitude and Departure) I find 54 Degrees for my Courſe ; and with that Courſe, and my proper Difference of Latitude, I find my Diſtance to be 3348 Miles. *3350 Miles.*

The Courſe being thus found in Degrees, I want in the next Place to know what Quarter of the Compaſs it is in, that is, whether it be ſo many Degrees from the North towards the Eaſt, or from the North towards the Weſt, &c. to do which take the following Rule.

If you are to ſail from a greater North Latitude to a leſs, or from North Latitude into South ; or from a leſſer South Latitude to a greater, then you muſt ſail to the Southward.

But if you are to ſail from a greater South Latitude to a leſſer, or from South Latitude into North ; or from a leſs North Latitude to a greater, you muſt ſail to the Northward.

If

If you are to sail from a Greater Eaſt Longitude to a Leſſer, or from a Leſſer Weſt Longitude to a Greater; or from Eaſt Longitude into Weſt, you muſt ſail to the Weſtward, except the Difference of Longitude be more than 180 Degrees, and then you muſt ſail to the Eaſtward.

But if you are to go from a Greater Weſt Longitude to a Leſſer, or from a leſſer Eaſt Longitude to a greater, or from Weſt Longitude into Eaſt, you muſt ſail to the Eaſtward, except your Difference of Longitude be more than 180 Degrees, and then you muſt ſail to the Weſtward.

EXAMPLE.

In the foregoing Caſe of Mercator's Sailing, I find by the two Latit. that I am bound from a Greater North Latitude to a Leſſer, *viz.* from 50.00 N. to 17.10 N. then by the Rule I muſt ſail to the Southward; and I find by the two Longitudes, that I am bound from a Leſſer Weſt Longitude to a Greater, *viz.* from 3.10 Weſt to 59.11 Weſt, then by that Rule I am to go to the Weſtward, therefore my Courſe will be South 54.00 Weſt, or SW. ¾ Weſt neareſt.

This firſt Caſe of Mercator, being the Caſe that is always made uſe of, to find the Courſe and Diſtance from Place to Place, or to find the Bearing and Diſtance of any Place, from the Ship at any Time, I have ſet down the Work of it at large, and ſhall leave the other Caſe for the Reader to exerciſe himſelf with, by working them by the Rules already given him.

A Table of the Angles which every Point and Quarter Point of the Compaſs makes with the Meridian.

	D	M		D	M		D	M		D	M
¼	2	49	2¼	25	19	4¼	47	49	6¼	70	19
½	5	37	2½	28	07	4½	50	38	6½	73	07
¾	8	26	2¾	30	56	4¾	53	26	6¾	75	56
1	11	15	3	33	45	5	56	15	7	78	45
1¼	14	04	3¼	36	34	5¼	59	04	7¼	81	34
1½	16	52	3½	39	22	5½	61	53	7½	84	23
1¾	19	41	3¾	42	11	5¾	64	41	7¾	87	11
2	22	30	4	45	00	6	67	30	8	90	00

The Uſe of this Table is to turn Points into Degrees, or Degrees into Points, as follows : Suppoſe I would know how many Degrees 5 Points are, then I look for 5 Points, and againſt it I find 56 Deg. 15 Min. or if I would know how many Points 42 Deg. 17 Min. are, I look for the neareſt to it, which is 42 Deg. 11 Min. and againſt that ſtands 3¾ Points.

The

The Courſes and Diſtances being ſet down in a Traverſe Table, as in Page (52) it will be found neceſſary for the ready looking them out in the Table of Difference of Latitude and Departure, to know what Angles they make with the Meridian, (or as we commonly ſay) to know how many Points there are, for which Reaſon I have here given the Figure of the Mariner's Compaſs, which is to be uſed as follows.

Example 1ſt. Suppoſe I would know how many Points I muſt look out for in the Table of Difference of Latitude and Departure, for a SW. by W. Courſe.

Look in the Figure below, and againſt the Point mark'd with SW. by W. you will ſee the Figure 5, which ſhews that you muſt look out for 5 Points.

Example 2d. How many Points is E. by N. ¾ E. againſt E. by N. I find 7, and my Courſe being ¾ Point more, it makes 7 ¾.
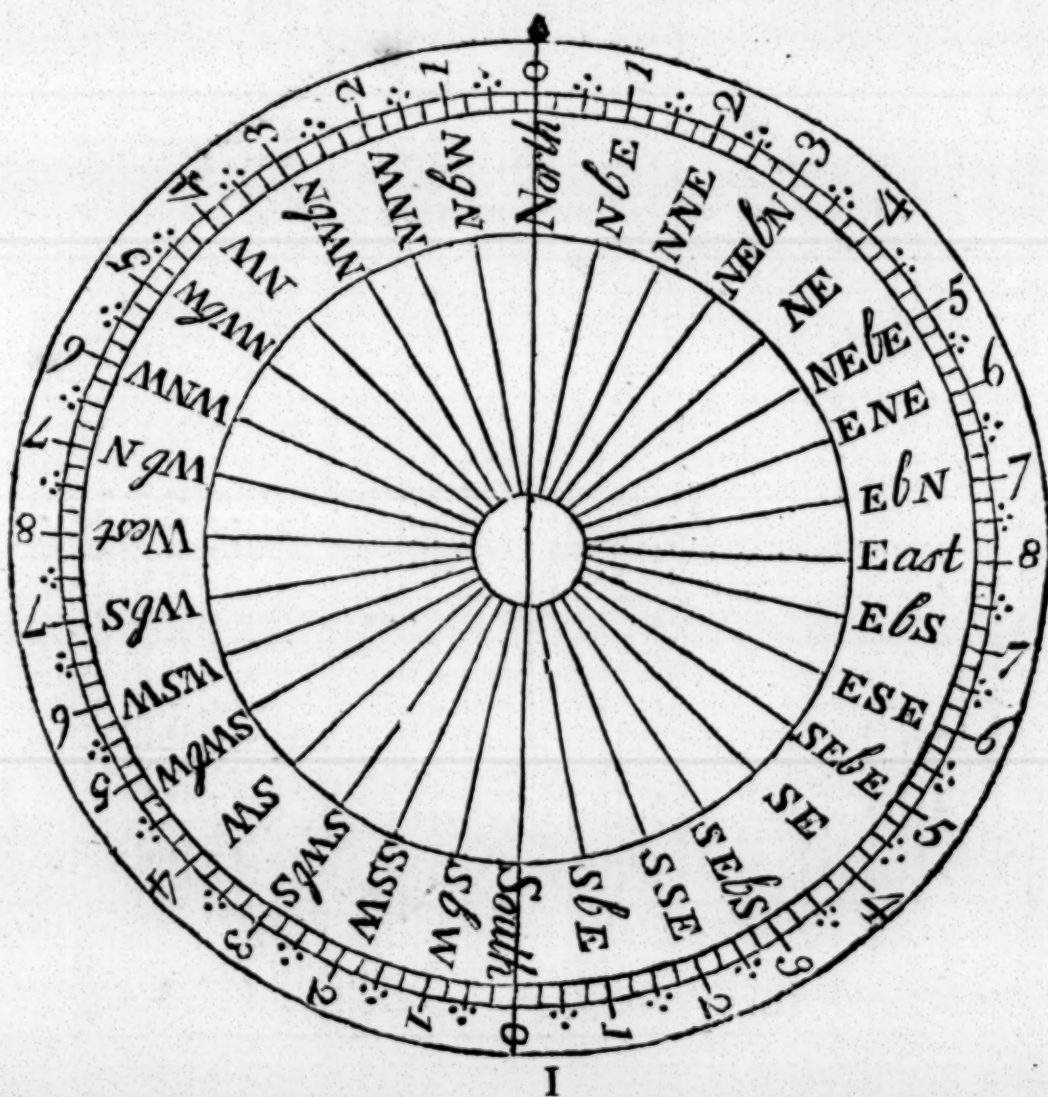
D ft	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	La	Dep	Diff	Lat	Dep	Diff	Lat	Dep
1	01.0	00.0	51	50.9	02.5	101	100.9	05.0	151	150.8	07.4	201	200.8	09.9	251	250.7	12.3
2	02.0	00.1	52	51.9	02.6	102	101.9	05.0	152	151.8	07.5	202	201.8	09.9	252	251.7	12.4
3	03.0	00.1	53	52.9	02.6	103	102.9	05.1	153	152.8	07.5	203	202.8	10.0	253	252.7	12.4
4	04.0	00.2	54	53.9	02.7	104	103.9	05.1	154	153.8	07.6	204	203.8	10.0	254	253.7	12.5
5	05.0	00.2	55	54.9	02.7	105	104.9	05.2	155	154.8	07.6	205	204.8	10.1	255	254.7	12.5
6	06.0	00.3	56	55.9	02.7	106	105.9	05.2	156	155.8	07.7	206	205.8	10.1	256	255.7	12.6
7	07.0	00.3	57	56.9	02.8	107	106.9	05.3	157	156.8	07.7	207	206.8	10.2	257	256.7	12.6
8	08.0	00.4	58	57.9	02.8	108	107.9	05.3	158	157.8	07.8	208	207.8	10.2	258	257.7	12.7
9	09.0	00.4	59	58.9	02.9	109	108.9	05.4	159	158.8	07.8	209	208.7	10.3	259	258.7	12.7
10	10.0	00.5	60	59.9	02.9	110	109.9	05.4	160	159.8	07.9	210	209.7	10.3	260	259.7	12.8
11	11.0	00.5	61	60.9	03.0	111	110.9	05.5	161	160.8	07.9	211	210.7	10.4	261	260.7	12.8
12	12.0	00.6	62	61.9	03.0	112	111.9	05.5	162	161.8	08.0	212	211.7	10.4	262	261.7	12.9
13	13.0	00.6	63	62.9	03.1	113	112.9	05.5	163	162.8	08.0	213	212.7	10.5	263	262.7	12.9
14	14.0	00.7	64	63.9	03.1	114	113.9	05.6	164	163.8	08.1	214	213.7	10.5	264	263.7	13.0
15	15.0	00.7	65	64.9	03.2	115	114.9	05.6	165	164.8	08.1	215	214.7	10.6	265	264.7	13.0
16	16.0	00.8	66	65.9	03.2	116	115.9	05.7	166	165.8	08.2	216	215.7	10.6	266	265.7	13.1
17	17.0	00.8	67	66.9	03.3	117	116.9	05.7	167	166.8	08.2	217	216.7	10.7	267	266.7	13.1
18	18.0	00.9	68	67.9	03.3	118	117.9	05.8	168	167.8	08.3	218	217.7	10.7	268	267.7	13.2
19	19.0	00.9	69	68.9	03.4	119	118.9	05.8	169	168.8	08.3	219	218.7	10.8	269	268.7	13.2
20	20.0	01.0	70	69.9	03.4	120	119.9	05.9	170	169.8	08.4	220	219.7	10.8	270	269.7	13.3
21	21.0	01.0	71	70.9	03.5	121	120.9	05.9	171	170.8	08.4	221	220.7	10.9	271	270.7	13.3
22	22.0	01.1	72	71.9	03.5	122	121.9	06.0	172	171.8	08.5	222	221.7	10.9	272	271.7	13.4
23	23.0	01.1	73	72.9	03.6	123	122.9	06.0	173	172.8	08.5	223	222.7	11.0	273	272.7	13.4
24	24.0	01.2	74	73.9	03.6	124	123.9	06.1	174	173.8	08.5	224	223.7	11.0	274	273.7	13.5
25	25.0	01.2	75	74.9	03.7	125	124.9	06.1	175	174.8	08.6	225	224.7	11.1	275	274.7	13.5
26	26.0	01.3	76	75.9	03.7	126	125.8	06.2	176	175.8	08.6	226	225.7	11.1	276	275.7	13.6
27	27.0	01.3	77	76.9	03.8	127	126.8	06.2	177	176.8	08.7	227	226.7	11.2	277	276.7	13.6
28	28.0	01.4	78	77.9	03.8	128	127.8	06.3	178	177.8	08.7	228	227.7	11.2	278	277.7	13.7
29	29.0	01.4	79	78.9	03.9	129	128.8	06.3	179	178.8	08.8	229	228.7	11.3	279	278.7	13.7
30	30.0	01.5	80	79.9	03.9	130	129.8	06.4	180	179.8	08.8	230	229.7	11.3	280	279.7	13.8
31	31.0	01.5	81	80.9	04.0	131	130.8	06.4	181	180.8	08.9	231	230.7	11.4	281	280.7	13.8
32	32.0	01.6	82	81.9	04.0	132	131.8	06.5	182	181.8	08.9	232	231.7	11.4	282	281.7	13.9
33	33.0	01.6	83	82.9	04.1	133	132.8	06.5	183	182.8	09.0	233	232.7	11.5	283	282.7	13.9
34	34.0	01.7	84	83.9	04.1	134	133.8	06.6	184	183.8	09.0	234	233.7	11.5	284	283.7	14.0
35	35.0	01.7	85	84.9	04.2	135	134.8	06.6	185	184.8	09.1	235	234.7	11.5	285	284.7	14.0
36	36.0	01.8	86	85.9	04.2	136	135.8	06.7	186	185.8	09.1	236	235.7	11.6	286	285.7	14.1
37	37.0	01.8	87	86.9	04.3	137	136.8	06.7	187	186.8	09.2	237	236.7	11.6	287	286.7	14.1
38	38.0	01.9	88	87.9	04.3	138	137.8	06.8	188	187.8	09.2	238	237.7	11.7	288	287.7	14.2
39	39.0	01.9	89	88.9	04.4	139	138.8	06.8	189	188.8	09.3	239	238.7	11.7	289	288.7	14.2
40	40.0	02.0	90	89.9	04.4	140	139.8	06.9	190	189.8	09.3	240	239.7	11.8	290	289.7	14.3
41	41.0	02.0	91	90.9	04.5	141	140.8	06.9	191	190.8	09.4	241	240.7	11.8	291	290.7	14.3
42	41.9	02.1	92	91.9	04.5	142	141.8	07.0	192	191.8	09.4	242	241.7	11.9	292	291.6	14.4
43	42.9	02.1	93	92.9	04.6	143	142.8	07.0	193	192.8	09.5	243	242.7	11.9	293	292.6	14.4
44	43.9	02.2	94	93.9	04.6	144	143.8	07.1	194	193.8	09.5	244	243.7	12.0	294	293.6	14.5
45	44.9	02.2	95	94.9	04.7	145	144.8	07.1	195	194.8	09.6	245	244.7	12.0	295	294.6	14.5
46	45.9	02.3	96	95.9	04.7	146	145.8	07.2	196	195.8	09.6	246	245.7	12.1	296	295.6	14.5
47	46.9	02.3	97	96.9	04.8	147	146.8	07.2	197	196.8	09.7	247	246.7	12.1	297	296.6	14.6
48	47.9	02.4	98	97.9	04.8	148	147.8	07.3	198	197.8	09.7	248	247.7	12.2	298	297.6	14.6
49	48.9	02.4	99	98.9	04.9	149	148.8	07.3	199	198.8	09.8	249	248.7	12.2	299	298.6	14.7
50	49.9	02.5	100	99.9	04.9	150	149.8	07.4	200	199.8	09.8	250	249.7	12.3	300	299.6	14.7
Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00,1	51	50,8	05.0	101	100.5	09.9	151	150.3	14.8	201	200.0	19.7	251	249.8	24.6
2	02.0	00,2	52	51.8	05.1	02	101.5	10.0	52	151.3	14.9	02	201.0	19.8	52	250.8	24.7
3	03.0	00.3	53	52.7	05.2	03	102.5	10.1	53	152.3	15.0	03	202.0	19.9	53	251.8	24.8
4	04.0	00.4	54	53.7	05.3	04	103.5	10.2	54	153.3	15.1	04	203.0	20.0	54	252.8	24.9
5	05.0	00.5	55	54.7	05.4	05	104.5	10.3	55	154.3	15.2	05	204.0	20.1	55	253.8	25.0
6	06.0	00.6	56	55.7	05.5	106	105.5	10.4	156	155.3	15.3	206	205.0	20.2	256	254.8	25.1
7	07.0	00.7	57	56.7	05.6	07	106.5	10.5	57	156.2	15.4	07	206.0	20.2	57	255.8	25.2
8	08.0	00.8	58	57.7	05.7	08	107.5	10.6	58	157.2	15.5	08	207.0	20.3	58	256.8	25.3
9	09.0	00.9	59	58.7	05.8	09	108.5	10.7	59	158.2	15.6	09	208.0	20.4	59	257.8	25.4
10	10.0	01.0	60	59.7	05.9	10	109.5	10.8	60	159.2	15.7	10	209.0	20.5	60	258.8	25.5
11	10.9	01.1	61	60.7	06.0	111	110.5	10.9	161	160.2	15.7	211	210.0	20.6	261	259.7	25.6
12	11.9	01.2	62	61.7	06.1	12	111.5	11.0	62	161.2	15.8	12	211.0	20.7	62	260.7	25.7
13	12.9	01.3	63	62.7	06.2	13	112.5	11.1	63	162.2	15.9	13	212.0	20.8	63	261.7	25.8
14	13.9	01.4	64	63.7	06.3	14	113.5	11.2	64	163.2	16.0	14	213.0	20.9	64	262.7	25.9
15	14.9	01.5	65	64.7	06.4	15	114.4	11.2	65	164.2	16.1	15	214.0	21.0	65	263.7	26.0
16	15.9	01.6	66	65.7	06.5	116	115.4	11.3	166	165.2	16.2	216	215.0	21.1	266	264.7	26.1
17	16.9	01.7	67	66.7	06.6	17	116.4	11.4	67	166.2	16.3	17	216.0	21.2	67	265.7	26.2
18	17.9	01.8	68	67.7	06.7	18	117.4	11.5	68	167.2	16.4	18	217.0	21.3	68	266.7	26.3
19	18.9	01.9	69	68.7	06.7	19	118.4	11.6	69	168.2	16.5	19	217.9	21.4	69	267.7	26.4
20	19.9	02.0	70	69.7	06.8	20	119.4	11.7	70	169.2	16.6	20	218.9	21.5	70	268.7	26.5
21	20.9	02.1	71	70.7	06.9	121	120.4	11.8	171	170.2	16.7	221	219.9	21.6	271	269.7	26.6
22	21.9	02.2	72	71.7	07.0	22	121.4	11.9	72	171.2	16.8	22	220.9	21.7	72	270.7	26.7
23	22.9	02.2	73	72.6	07.1	23	122.4	12.0	73	172.2	16.9	23	221.9	21.8	73	271.7	26.8
24	23.9	02.3	74	73.6	07.2	24	123.4	12.1	74	173.2	17.0	24	222.9	21.9	74	272.7	26.9
25	24.9	02.4	75	74.6	07.3	25	124.4	12.2	75	174.2	17.1	25	223.9	22.0	75	273.7	27.0
26	25.9	02.5	76	75.6	07.4	126	125.4	12.3	176	175.2	17.2	226	224.9	22.1	276	274.7	27.1
27	26.9	02.6	77	76.6	07.5	27	126.4	12.4	77	176.2	17.3	27	225.9	22.2	77	275.7	27.2
28	27.9	02.7	78	77.6	07.6	28	127.4	12.5	78	177.1	17.4	28	226.9	22.3	78	276.7	27.3
29	28.9	02.8	79	78.6	07.7	29	128.4	12.6	79	178.1	17.5	29	227.9	22.4	79	277.7	27.4
30	29.9	02.9	80	79.6	07.8	30	129.4	12.7	80	179.1	17.6	30	228.9	22.5	80	278.7	27.5
31	30.9	03.0	81	80.6	07.9	131	130.4	12.8	181	180.1	17.7	231	229.9	22.6	281	279.6	27.6
32	31.8	03.1	82	81.6	08.0	32	131.4	12.9	82	181.1	17.8	32	230.9	22.7	82	280.6	27.7
33	32.8	03.2	83	82.6	08.1	33	132.4	13.0	83	182.1	17.9	33	231.9	22.8	83	281.6	27.8
34	33.8	03.3	84	83.6	08.2	34	133.4	13.1	84	183.1	18.0	34	232.9	22.9	84	282.6	27.9
35	34.8	03.4	85	84.6	08.3	35	134.4	13.2	85	184.1	18.1	35	233.9	23.0	85	283.6	28.0
36	35.8	03.5	86	85.6	08.4	136	135.3	13.3	186	185.1	18.2	236	234.9	23.1	286	284.6	28.1
37	36.8	03.6	87	86.6	08.5	37	136.3	13.4	87	186.1	18.3	37	235.9	23.2	87	285.6	28.2
38	37.8	03.7	88	87.6	08.6	38	137.3	13.5	88	187.1	18.4	38	236.9	23.3	88	286.6	28.3
39	38.8	03.8	89	88.6	08.7	39	138.3	13.6	89	188.1	18.5	39	237.9	23.4	89	287.6	28.4
40	39.8	03.9	90	89.6	08.8	40	139.3	13.7	90	189.1	18.6	40	238.8	23.5	90	288.6	28.5
41	40.8	04.0	91	90.6	08.9	141	140.3	13.8	191	190.1	18.7	241	239.8	23.6	291	289.6	28.6
42	41.8	04.1	92	91.6	09.0	42	141.3	13.9	92	191.1	18.8	42	240.8	23.7	92	290.6	28.7
43	42.8	04.2	93	92.6	09.1	43	142.3	14.0	93	192.1	18.9	43	241.8	23.8	93	291.6	28.8
44	43.8	04.3	94	93.5	09.2	44	143.3	14.1	94	193.1	19.0	44	242.8	23.9	94	292.6	28.9
45	44.8	04.4	95	94.5	09.3	45	144.3	14.2	95	194.1	19.1	45	243.8	24.0	95	293.6	29.0
46	45.8	04.5	96	95.5	09.4	146	145.3	14.3	196	195.1	19.2	246	244.8	24.1	296	294.6	29.1
47	46.8	04.6	97	96.5	09.5	47	146.3	14.4	97	196.1	19.3	47	245.8	24.2	97	295.6	29.2
48	47.8	04.7	98	97.5	09.6	48	147.3	14.5	98	197.0	19.4	48	246.8	24.3	98	296.6	29.2
49	48.8	04.8	99	98.5	09.7	49	148.3	14.6	99	198.0	19.5	49	247.8	24.4	99	297.6	29.3
50	49.8	04.9	100	99.5	09.8	150	149.3	14.7	200	199.0	19.6	250	248.8	24.5	300	298.6	29.4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat	Dep	Diſt	Lat.	Dep	Diſt	Lat	Dep
1	01.0	00.1	51	50.4	07.5	101	99.9	14.8	151	149.4	22.1	201	198.8	29.5	251	248.3	36.8
2	02.0	00.3	52	51.4	07.6	02	100.9	15.0	52	150.3	22.3	02	199.8	29,6	52	249.3	37.0
3	03.0	00.4	53	52.4	07.8	03	101.9	15.1	53	151.3	22.4	03	200.8	29.8	53	250.2	37.1
4	04.0	00.6	54	53.4	07.9	04	102.9	15.3	54	152.3	22.6	04	201.8	29 9	54	251.2	37.3
5	04.9	00.7	55	54 4	08.1	05	103.9	15.4	55	153.3	22.7	05	202.8	30.1	55	252.2	37.4
6	05.9	00.9	56	55,4	08.2	106	104.8	15.5	156	154.3	22.9	206	203.8	30.2	256	253.2	37.5
7	06.9	01.0	57	56.4	08.4	07	105.8	15.7	57	155.3	23.0	07	204.7	30.4	57	254.2	37.7
8	07.9	01.2	58	57.4	08.5	08	106.8	15.8	58	156.3	23.2	08	205.7	30.5	58	255.2	37.8
9	08.9	01.3	59	58.4	08.6	09	107.8	16.0	59	157.3	23.3	09	206.7	30.6	59	256.2	38.0
10	09.9	01.5	60	59.3	08.8	10	108.8	16.1	60	158.3	23.5	10	207.7	30.8	60	257.2	38.1
11	10.9	01.6	61	60.3	08.9	111	109.8	16.3	161	159.2	23.6	211	208.7	30.9	261	258.2	38.3
12	11.9	01.8	62	61.3	09.1	12	110.8	16.4	62	160.2	23.8	12	209.7	31.1	62	259.1	38.4
13	12.9	01.9	63	62.3	09.2	13	111.8	16.6	63	161.2	23.9	13	210.7	31.2	63	260.1	38.6
14	13.8	02.1	64	63.3	09.4	14	112.8	16.7	64	162.2	24.0	14	211.7	31.4	64	261.1	38.7
15	14.8	02.2	65	64.3	09.5	15	113.7	16.9	65	163.2	24.2	15	212.7	31.5	65	262.1	38.9
16	15.8	02.3	66	65.3	09.7	116	114.7	17.0	166	164.2	24.3	216	213 7	31.7	266	263.1	39.0
17	16.8	02.5	67	66.3	09.8	17	115.7	17.2	67	165.2	24.5	17	214.6	31.8	67	264.1	39.2
18	17.8	02.6	68	67.3	10.0	18	116.7	17.3	68	166.2	24.6	18	215.6	32.0	68	265.1	39.3
19	18.8	02.8	69	68.2	10.1	19	117.7	17.5	69	167.2	24.8	19	216.6	32.1	69	266.1	39.5
20	19.8	02.9	70	69 2	10.3	20	118.7	17.6	70	168.1	24.9	20	217.6	32.3	70	267 1	39 6
21	20.8	03.1	71	70.2	10.4	121	119.7	17.7	171	169.1	25.1	221	218.6	32,4	271	268.1	39.7
22	21.8	03.2	72	71.2	10.6	22	120.7	17.9	72	170.1	25.2	22	219.6	32.6	72	269.0	39.9
23	22.7	03.4	73	72.2	10.7	23	121.7	18.0	73	171.1	25.4	23	220.6	32.7	73	270.0	40.0
24	23.7	03.5	74	73.2	10.8	24	122.7	18.2	74	172.1	25.5	24	221.6	32.8	74	271.0	40.2
25	24.7	03.7	75	74.2	11.0	25	123.6	18.3	75	173.1	25.7	25	222.6	33.0	75	272.0	40.3
26	25.7	03.8	76	75.2	11.1	126	124.6	18.5	176	174.1	25.8	226	223.5	33.1	276	273 0	40.5
27	26.7	04.0	77	76.2	11.2	27	125.6	18.6	77	175.1	26.0	27	224.5	33.3	77	274.0	40.6
28	27.7	04.1	78	77.1	11.4	28	126.6	18.8	78	176.1	26.1	28	225.5	33.4	78	275.0	40.8
29	28.7	04.3	79	78.1	11.6	29	127.6	18.9	79	177.1	26.3	29	226,5	33.6	79	276,0	40.9
30	29.7	04.4	80	79.1	11.7	30	128.6	19.1	80	178.0	26.4	30	227.5	33.7	80	277.0	41.1
31	30.7	04.5	81	80.1	11.9	131	129.6	19.2	181	179.0	26.5	231	228.5	33.9	281	277.9	41,2
32	31.7	04.7	82	81.1	12.0	32	130.6	19,4	82	180.0	26.7	32	229.5	34.0	82	278.9	41.4
33	32.6	04.8	83	82.1	12.2	33	131.6	19.5	83	181.0	26 8	33	230.5	34.2	83	279 9	41.5
34	33.6	05.0	84	83.1	12.3	34	132.5	19.6	84	182.0	27.0	34	231.5	34.3	84	280.9	41.6
35	34.6	05.1	85	84.1	12.5	35	133.5	19.8	85	183.0	27.1	35	232.4	34.5	85	281.9	41.8
36	35.6	05,3	86	85.1	12.6	136	134.5	19.9	186	184.0	27.3	236	233.4	34.6	286	282.9	41.9
37	36.6	05 4	87	86 1	12.8	37	135.5	20.1	87	185.0	27.4	37	234.4	34.8	87	283.9	42.1
38	37.5	05.6	88	87.0	12.9	38	136.5	20.2	88	186.0	27.6	38	235.4	34.9	88	284.9	42.2
39	38.6	05,7	89	88,0	13.0	39	137 5	20.4	89	186.9	27.7	39	236.4	35.0	89	285.9	42.4
40	39.6	05.9	90	89.0	13 2	40	138.5	20.5	90	187.9	27.9	40	237.4	35.2	90	286.8	42.5
41	40.6	06.0	91	90.0	13.3	141	139.5	20.7	191	188.9	28.0	241	238.4	35,3	291	287.8	42.7
42	41.5	06.2	92	91.0	13.5	42	140.5	20.8	92	189.9	28.2	42	239.4	35.5	92	288.8	42.8
43	42.5	06.3	93	92.0	13.6	43	141.4	21.0	93	190.9	28.3	43	240.4	35.6	93	289.8	43.0
44	43.5	06.5	94	93.0	13.8	44	142.4	21.1	94	191.9	28.5	44	241.3	55.8	94	290.8	43.1
45	44.5	06,6	95	94.0	13.9	45	143.4	21.3	95	192.9	28.6	45	242.3	35.9	95	291.8	43.3
46	45.5	06.7	96	95.0	14.1	146	144.4	21.4	196	193.9	28.7	246	243,3	36.1	296	292.8	43.4
47	46.5	06.9	97	95.9	14.2	47	145.4	21.6	97	194.9	28.9	47	244 3	36.2	97	293.8	43.6
48	47.5	07.0	98	96.9	14.4	48	146.4	21.7	98	195.8	29.0	48	245.3	36.4	98	294.8	43.7
49	48.5	07.2	99	97.9	14.5	49	147.4	21.8	99	196.8	29.2	49	246.3	36.5	99	295.7	43.8
50	49.5	07.3	100	98.9	14.7	150	148,4	22.0	200	197.8	29.3	250	247.3	36.7	300	296.7	44.0
Diſt	Dep	La	Diſt	Dep	Lat	Diſt	Dep	Lat	Diſt	Dep	La	Diſt	Dep	Lat	Diſt	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.0	00.2	51	50.0	10.0	101	99.1	19.7	151	148.1	29.5	201	197.1	39.2	251	246.1	49.0
2	02.0	00.4	52	51.0	10.1	02	100.0	19.9	52	149.1	29.7	02	198.1	39.4	52	247.1	49.2
3	02.9	00.6	53	52.0	10.3	03	101.0	20.1	53	150.0	19.9	03	199.1	39.6	53	248.1	49.4
4	03.9	00.8	54	53.0	10.5	04	102.0	20.3	54	151.0	30.0	04	200.1	39.8	54	249.1	49.6
5	04.9	01.0	55	53.9	10.7	05	103.0	20.5	55	152.0	30.2	05	201.0	40.0	55	250.1	49.8
6	05.9	01.2	56	54.9	10.9	106	104.0	20.7	156	153.0	30.4	206	202.0	40.2	256	251.1	50.0
7	06.9	01.4	57	55.9	11.1	07	104.9	20.9	57	154.0	30.6	07	203.0	40.4	57	252.0	50.1
8	07.8	01.6	58	56.9	11.3	08	105.9	21.1	58	154.9	30.8	08	204.0	40.6	58	253.0	50.3
9	08.8	01.8	59	57.9	11.5	09	106.9	21.3	59	155.9	31.0	09	205.0	40.8	59	254.0	50.5
10	09.8	02.0	60	58.8	11.7	10	107.9	21.5	60	156.9	31.2	10	205.9	41.0	60	255.0	50.7
11	10.8	02.1	61	59.8	11.9	111	108.9	21.7	161	157.9	31.4	211	206.9	41.2	261	256.0	50.9
12	11.8	02.3	62	60.8	12.1	12	109.8	21.9	62	158.9	31.6	12	207.9	41.4	62	256.9	51.1
13	12.7	02.5	63	61.8	12.3	13	110.8	22.0	63	159.8	31.8	13	208.9	41.6	63	257.9	51.3
14	13.7	02.7	64	62.8	12.5	14	111.8	22.2	64	160.8	32.0	14	209.9	41.8	64	258.9	51.5
15	14.7	02.9	65	63.7	12.7	15	112.8	22.4	65	161.8	32.2	15	210.8	42.0	65	259.9	51.7
16	15.7	03.1	66	64.7	12.9	116	113.8	22.6	166	162.8	32.4	216	211.8	42.1	266	260.9	51.9
17	16.7	03.3	67	65.7	13.1	17	114.7	22.8	67	163.8	32.6	17	212.8	42.3	67	261.8	52.1
18	17.7	03.5	68	66.7	13.3	18	115.7	23.0	68	164.7	32.8	18	213.8	42.5	68	262.8	52.3
19	18.6	03.7	69	67.7	13.5	19	116.7	23.2	69	165.7	33.0	19	214.8	42.7	69	263.8	52.5
20	19.6	03.9	70	68.6	13.7	20	117.7	23.4	70	166.7	33.2	20	215.7	42.9	70	264.8	52.7
21	20.6	04.1	71	69.6	13.9	121	118.7	23.6	171	167.7	33.4	221	216.7	43.1	271	265.3	52.9
22	21.6	04.3	72	70.6	14.0	22	119.6	23.8	72	168.7	33.6	22	217.7	43.3	72	266.7	53.1
23	22.6	04.5	73	71.6	14.2	23	120.6	24.0	73	169.7	33.8	23	218.7	43.5	73	267.7	53.3
24	23.5	04.7	74	72.6	14.4	24	121.6	24.2	74	170.6	34.0	24	219.7	43.7	74	268.7	53.5
25	24.5	04.9	75	73.6	14.6	25	122.6	24.4	75	171.6	34.1	25	220.6	43.9	75	269.7	53.7
26	25.5	05.1	76	74.5	14.8	126	123.6	24.6	176	172.6	34.3	226	221.6	44.1	276	270.7	53.9
27	26.5	05.3	77	75.5	15.0	27	124.5	24.8	77	173.6	34.5	27	222.6	44.3	77	271.6	54.0
28	27.5	05.5	78	76.5	15.2	28	125.5	25.0	78	174.6	34.7	28	223.6	44.5	78	272.6	54.2
29	28.4	05.7	79	77.5	15.4	29	126.5	25.2	79	175.5	34.9	29	224.6	44.7	79	273.6	54.4
30	29.4	05.9	80	78.5	15.6	30	127.5	25.4	80	176.5	35.1	30	225.6	44.9	80	274.6	54.6
31	30.4	06.0	81	79.4	15.8	131	128.5	25.6	181	177.5	35.3	231	226.5	45.1	281	275.6	54.8
32	31.4	06.2	82	80.4	16.0	32	129.5	25.8	82	178.5	35.5	32	227.5	45.3	82	276.5	55.0
33	32.4	06.4	83	81.4	16.2	33	130.4	26.0	83	179.5	35.7	33	228.5	45.5	83	277.5	55.2
34	33.3	06.6	84	82.4	16.4	34	131.4	26.1	84	180.4	35.9	34	229.5	45.7	84	278.5	55.4
35	34.3	06.8	85	83.4	16.6	35	132.4	26.3	85	181.4	36.1	35	230.5	45.9	85	279.5	55.6
36	35.3	07.0	86	84.3	16.8	136	133.4	26.5	186	182.4	36.3	236	231.4	46.0	286	280.5	55.8
37	36.3	07.2	87	85.3	17.0	37	134.4	26.7	87	183.4	36.5	37	232.4	46.2	87	281.5	56.0
38	37.3	07.4	88	86.3	17.2	38	135.3	26.9	88	184.4	36.7	38	233.4	46.4	88	282.4	56.2
39	38.2	07.6	89	87.3	17.4	39	136.3	27.1	89	185.3	36.9	39	234.4	46.6	89	283.4	56.4
40	39.2	07.8	90	88.3	17.6	40	137.3	27.3	90	186.3	37.1	40	235.4	46.8	90	284.4	56.6
41	40.2	08.0	91	89.2	17.8	141	138.3	27.5	191	187.3	37.3	241	236.3	47.0	291	285.4	56.8
42	41.2	08.2	92	90.2	18.0	42	139.3	27.7	92	188.3	37.5	42	237.3	47.2	92	286.4	57.0
43	42.2	08.4	93	91.2	18.1	43	140.2	27.9	93	189.3	37.7	43	238.3	47.4	93	287.3	57.2
44	43.2	08.6	94	92.2	18.3	44	141.2	28.1	94	190.2	37.9	44	239.3	47.6	94	288.3	57.4
45	44.1	08.8	95	93.2	18.5	45	142.2	28.3	95	191.2	38.0	45	240.3	47.8	95	289.3	57.6
46	45.1	09.0	96	94.1	18.7	146	143.2	28.5	196	192.2	38.2	246	241.2	48.0	296	290.3	57.8
47	46.1	09.2	97	95.1	18.9	47	144.2	28.7	97	193.2	38.4	47	242.2	48.2	97	291.3	58.0
48	47.1	09.4	98	96.1	19.1	48	145.1	28.9	98	194.2	38.6	48	243.2	48.4	98	292.2	58.1
49	48.1	09.6	99	97.1	19.3	49	146.1	29.1	99	195.2	38.8	49	244.2	48.6	99	293.2	58.3
50	49.0	09.8	100	98.1	19.5	150	147.1	29.3	200	196.1	39.0	250	245.2	48.8	300	294.2	58.5
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep
1	01,0	00.2	51	49.5	12.4	101	98.0	24.5	151	146.5	36.7	201	195,0	48.8	251	243.5	61.0
2	01.9	00.5	52	50.4	12.6	02	98.9	24.8	52	147.4	36.9	02	195.9	49.1	52	244.4	61.2
3	02.9	00,7	53	51.4	12.9	03	99.9	25.0	53	148.4	37,2	03	196.9	49.3	53	245.4	61,5
4	03.9	01,0	54	52.4	13.1	04	100.9	25,3	54	149.4	37.4	04	197.9	49.6	54	246.4	61,7
5	04.9	01.2	55	53 4	13.4	05	101 9	25.5	55	150.4	37.7	05	198.9	49.8	55	247.4	62.0
6	05.8	01.5	56	54.3	13.6	106	102.8	25.8	156	151.3	37.9	206	199.8	50.1	256	248.3	62 2
7	06.8	01.7	57	55.3	13.9	07	103.8	26.0	57	152.3	38.2	07	200,8	50.3	57	249.3	62.5
8	07.8	01.9	58	56.3	14.1	08	104.8	26.2	58	153.3	38,4	08	201.8	50.5	58	250 3	62.7
9	08.7	02.2	59	57.2	14.3	09	105.7	26.5	59	154.2	38.6	09	202.7	50.8	59	251.2	62.9
10	09.7	02.4	60	58.2	14.6	10	106,7	26.7	60	155.2	38.9	10	203,7	51.0	60	252.2	63.2
11	10.7	02.7	61	59 2	14.8	111	107.7	27.0	161	156.2	39.1	211	204.7	51.3	261	253.2	63.4
12	11.6	02 9	62	60.1	15.1	12	108.6	27.2	62	157.1	39.4	12	205.6	51,5	62	254.1	63.7
13	12 6	03.2	63	61.1	15.3	13	109.6	27.5	63	158.1	39.6	13	206.6	51.8	63	255.1	63.9
14	13.6	03.4	64	62.1	15.6	14	110.6	27.7	64	159.1	39,9	14	207.6	52.0	64	256.1	64.2
15	14.6	03.6	65	63.1	15.8	15	111.6	27.9	65	160 1	40,1	15	208.6	52.2	65	257.1	64.4
16	15.5	03.9	66	64.0	16.0	116	112.5	28.2	166	161.0	40.3	216	209.5	52.5	266	258.0	64,6
17	16.5	04.1	67	65.0	16.3	17	113.5	28,4	67	162.0	40.6	17	210.5	52,7	67	259.0	64,9
18	17.5	04.4	68	66.0	16.5	18	114.5	28.7	68	163.0	40.8	18	211.5	53.0	68	260.0	65.1
19	18 4	04,6	69	66.9	16.8	19	115.4	28.9	69	163.9	41.1	19	212.4	53.2	69	260,9	65.4
20	19.4	04,9	70	67.9	17.0	20	116.4	29.2	70	164.9	41.3	20	213.4	53.5	70	261.9	65.6
21	20.4	05.1	71	68.9	17.3	121	117.4	29.4	171	165.9	41.6	221	214.4	53.7	271	262.9	65.9
22	21.3	05.3	72	69.8	17.5	22	118.3	29.6	72	166.8	41.8	22	215.3	53.9	72	263.8	66.1
23	22.3	05.6	73	70.8	17.7	23	119.3	29.9	73	167.8	42.0	23	216.3	54.2	73	264.8	66.3
24	23.3	05,8	74	71.8	18,0	24	120.3	30.1	74	168.8	42,3	24	217.3	54.4	74	265.8	66.6
25	24.3	06.1	75	72.8	18.2	25	121.3	30.4	75	169.8	42.5	25	218.3	54.7	75	266,8	66.8
26	25.2	06.3	76	73.7	18.5	126	122.2	30.6	176	170.7	42,8	226	219.2	54,9	276	267.7	67.1
27	26.2	06.6	77	74.7	18.7	27	123.2	30.9	77	171.7	43.0	27	220.2	55.2	77	268.7	67.3
28	27.2	06.8	78	75.7	19.0	28	124.2	31 1	78	172.7	43.3	28	221.2	55.4	78	269.7	67.6
29	28.1	07.0	79	76.6	19.2	29	125.1	31.3	79	173.6	43.5	29	222.1	55.6	79	270.6	67.8
30	29 1	07.3	80	77.6	19 4	30	126.1	31.6	80	174.6	43.7	30	223.1	55.9	80	271.6	68.0
31	30.1	07.5	81	78.6	19.7	131	127.1	31.8	181	175.6	44.0	231	224.1	56.1	281	272.6	68.3
32	31.0	07,8	82	79.5	19.9	32	128.0	32,1	82	176.5	44.2	32	225.0	56.4	82	273.5	68.5
33	32.0	08,0	83	80.5	20.2	33	129,0	32.3	83	177.5	44.5	33	226.0	56.6	83	274.5	68.8
34	33.0	08.3	84	81.5	20.4	34	130.0	32.6	84	178.5	44.7	34	227.0	56.9	84	275,5	69.0
35	34.0	08.5	85	82.5	20.7	35	131,0	32.8	85	179.5	45.0	35	228.0	57.1	85	276.5	69.3
36	34.9	08.7	86	83.4	20.9	136	131.9	33.0	186	180.4	45.2	236	228.9	57.3	286	277.4	69,5
37	35.9	09.0	87	84.4	21.1	37	132,9	33.3	87	181.4	45,4	37	229.9	57.6	87	278.4	69.7
38	36.9	09.2	88	85.4	21.4	38	133.9	33.5	88	182.4	45.7	38	230.9	57.8	88	279.4	70.0
39	37.8	09.5	89	86.3	21.6	39	134.8	33.8	89	183.3	45.9	39	231.8	58.1	89	280.3	70.2
40	38.8	09.7	90	87.3	21.9	40	135.8	34.0	90	184.3	46.2	40	232.8	58.3	90	281.3	70.5
41	39.8	10.0	91	88.3	22.1	141	136.8	34.3	191	185.3	46.4	241	233.8	58.6	291	282.3	70,7
42	40.7	10.2	92	89.2	22.4	42	137.7	34.5	92	186.2	46,7	42	234.7	58.8	92	283,2	71.0
43	41.7	10.4	93	90.2	22.6	43	138.7	34.7	93	187.2	46.9	43	235.7	59.0	93	284.2	71.2
44	42.7	10.7	94	91.2	22.8	44	139.7	35.0	94	188.2	47.1	44	236.7	59.3	94	285.2	71,4
45	43.7	10,9	95	92.2	23.1	45	140.7	35.2	95	189,2	47.4	45	237.7	59.5	95	286.2	71.7
46	44.6	11.2	96	93.1	23.3	146	141.6	35.5	196	190.1	47.6	246	238.6	59.8	296	287.1	71.9
47	45.6	11.4	97	94.1	23.6	47	142.6	35.7	97	191.1	47,9	47	239.6	60.0	97	288.1	72.2
48	46.6	11.7	98	95.1	23.8	48	143.6	36.0	98	192.1	48.1	48	240.6	60.3	98	289.1	72.4
49	47,5	11,9	99	96.0	24.1	49	144.5	36.2	99	193.0	48.4	49	241.5	60.5	99	290.0	72.7
50	48.5	12.2	100	97.0	24.3	150	145.5	36.5	200	194.0	48.6	50	242,5	60.7	300	291,0	72,9
Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	L

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	01.0	00.3	51	48.8	14.8	101	96.7	29.3	151	144.5	43.8	201	192.4	58.3	251	240.2	72.8
2	01.9	00.6	52	49.8	15.1	02	97.6	29.6	52	145.5	44.1	02	193.3	58.6	52	241.2	73.1
3	02.9	00.9	53	50.7	15.4	03	98.6	29.9	53	146.4	44.4	03	194.3	58.9	53	242.1	73.4
4	03.8	01.2	54	51.7	15.7	04	99.5	30.2	54	147.4	44.7	04	195.2	59.2	54	243.1	73.7
5	04.8	01.5	55	52.6	16.0	05	100.5	30.5	55	148.3	45.0	05	196.2	59.5	55	244.0	74.0
6	05.7	01.7	56	53.6	16.2	106	101.4	30.7	156	149.3	45.2	206	197.1	59.7	256	245.0	74.2
7	06.7	02.0	57	54.5	16.5	07	102.4	31.0	57	150.2	45.5	07	198.1	60.0	57	245.9	74.5
8	07.7	02.3	58	55.5	16.8	08	103.4	31.3	58	151.2	45.8	08	199.1	60.3	58	246.9	74.8
9	08.6	02.6	59	56.5	17.1	09	104.3	31.6	59	152.2	46.1	09	200.0	60.6	59	247.9	75.1
10	09.6	02.9	60	57.4	17.4	10	105.3	31.9	60	153.1	46.4	10	201.0	60.9	60	248.8	75.4
11	10.5	03.2	61	58.4	17.7	111	106.2	32.2	161	154.1	46.7	211	201.9	61.2	261	249.8	75.7
12	11.5	03.5	62	59.3	18.0	12	107.2	32.5	62	155.0	47.0	12	202.9	61.5	62	250.7	76.0
13	12.4	03.8	63	60.3	18.3	13	108.1	32.8	63	156.0	47.3	13	203.8	61.8	63	251.7	76.3
14	13.4	04.1	64	61.2	18.6	14	109.1	33.1	64	156.9	47.6	14	204.8	62.1	64	252.6	76.6
15	14.4	04.4	65	62.2	18.9	15	110.1	33.4	65	157.9	47.9	15	205.8	62.4	65	253.6	76.9
16	15.3	04.6	66	63.2	19.1	116	111.0	33.6	166	158.9	48.1	216	206.7	62.6	266	254.6	77.1
17	16.3	04.9	67	64.1	19.4	17	112.0	33.9	67	159.8	48.4	17	207.7	62.9	67	255.5	77.4
18	17.2	05.2	68	65.1	19.7	18	112.9	34.2	68	160.8	48.7	18	208.6	63.2	68	256.5	77.7
19	18.2	05.5	69	66.0	20.0	19	113.9	34.5	69	161.7	49.0	19	209.6	63.5	69	257.4	78.0
20	19.1	05.8	70	67.0	20.3	20	114.8	34.8	70	162.7	49.3	20	210.5	63.8	70	258.4	78.3
21	20.1	06.1	71	67.9	20.6	121	115.8	35.1	171	163.6	49.6	221	211.5	64.1	271	259.3	78.6
22	21.1	06.4	72	68.9	20.9	22	116.8	35.4	72	164.6	49.9	22	212.5	64.4	72	260.3	78.9
23	22.0	06.7	73	69.9	21.2	23	117.7	35.7	73	165.6	50.2	23	213.4	64.7	73	261.3	79.2
24	23.0	07.0	74	70.8	21.5	24	118.7	36.0	74	166.5	50.5	24	214.4	65.0	74	262.2	79.5
25	23.9	07.3	75	71.8	21.8	25	119.6	36.3	75	167.5	50.8	25	215.3	65.3	75	263.2	79.8
26	24.9	07.5	76	72.7	22.0	126	120.6	36.5	176	168.4	51.0	226	216.3	65.5	276	264.1	80.0
27	25.8	07.8	77	73.7	22.3	27	121.5	36.8	77	169.4	51.3	27	217.2	65.8	77	265.1	80.3
28	26.8	08.1	78	74.6	22.6	28	122.5	37.1	78	170.3	51.6	28	218.2	66.1	78	266.0	80.6
29	27.8	08.4	79	75.6	22.9	29	123.5	37.4	79	171.3	51.9	29	219.2	66.4	79	267.0	80.9
30	28.7	08.7	80	76.6	23.2	30	124.4	37.7	80	172.3	52.2	30	220.1	66.7	80	268.0	81.2
31	29.7	09.0	81	77.5	23.5	131	125.4	38.0	181	173.2	52.5	231	221.1	67.0	281	268.9	81.5
32	30.6	09.3	82	78.5	23.8	32	126.3	38.3	82	174.2	52.8	32	222.0	67.3	82	269.9	81.8
33	31.6	09.6	83	79.4	24.1	33	127.3	38.6	83	175.1	53.1	33	223.0	67.6	83	270.8	82.1
34	32.5	09.9	84	80.4	24.4	34	128.2	38.9	84	176.1	53.4	34	223.9	67.9	84	271.8	82.4
35	33.5	10.2	85	81.3	24.7	35	129.2	39.2	85	177.0	53.7	35	224.9	68.2	85	272.7	82.7
36	34.5	10.4	86	82.3	24.9	136	130.2	39.4	186	178.0	53.9	236	225.9	68.4	286	273.7	82.9
37	35.4	10.7	87	83.3	25.2	37	131.1	39.7	87	179.0	54.2	37	226.8	68.7	87	274.7	83.2
38	36.4	11.0	88	84.2	25.5	38	132.1	40.0	88	179.9	54.5	38	227.8	69.0	88	275.6	83.5
39	37.3	11.3	89	85.2	25.8	39	133.0	40.3	89	180.9	54.8	39	228.7	69.3	89	276.6	83.8
40	38.3	11.6	90	86.1	26.1	40	134.0	40.6	90	181.8	55.1	40	229.7	69.6	90	277.5	84.1
41	39.2	11.9	91	87.1	26.4	141	134.9	40.9	191	182.8	55.4	241	230.6	69.9	291	278.5	84.4
42	40.2	12.2	92	88.0	26.7	42	135.9	41.2	92	183.7	55.7	42	231.6	70.2	92	279.4	84.7
43	41.2	12.5	93	89.0	27.0	43	136.9	41.5	93	184.7	56.0	43	232.5	70.5	93	280.4	85.0
44	42.1	12.8	94	90.0	27.3	44	137.8	41.8	94	185.7	56.3	44	233.5	70.8	94	281.4	85.3
45	43.1	13.1	95	90.9	27.6	45	138.8	42.1	95	186.6	56.6	45	234.5	71.0	95	282.3	85.6
46	44.0	13.3	96	91.9	27.8	146	139.7	42.3	196	187.6	56.8	246	235.4	71.3	296	283.3	85.8
47	45.0	13.6	97	92.8	28.1	47	140.7	42.6	97	188.5	57.1	47	236.4	71.6	97	284.2	86.1
48	45.9	13.9	98	93.8	28.4	48	141.6	42.9	98	189.5	57.4	48	237.3	71.9	98	285.2	86.4
49	46.9	14.2	99	94.7	28.7	49	142.6	43.2	99	190.4	57.7	49	238.3	72.2	99	286.1	86.7
50	47.9	14.5	100	95.7	29.0	150	143.5	43.5	200	191.4	58.0	250	239.2	72.5	300	287.1	87.0
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	01.9	00.3	51	48.0	17.2	101	95.1	34.0	151	142.2	50.9	201	189.2	67.7	251	236.3	84.5
2	01.9	00.7	52	49.0	17.5	02	96.0	34.4	52	143.1	51.2	02	190.2	68.0	52	237.3	84.9
3	02.8	01.0	53	49.9	17.9	03	97.0	34.7	53	144.0	51.5	03	191.1	68.4	53	238..	85.2
4	03.8	01.3	54	50.8	18.2	04	97.9	35.0	54	145.0	51.9	04	192.1	68.7	54	239.1	85.5
5	04.7	01.7	55	51.8	18.5	05	98.9	35.4	55	145.9	52.2	05	193.0	69.0	55	240.1	85.9
6	05.6	02.0	56	52.7	18.9	106	99.8	35.7	156	146.9	52.5	206	194.0	69.4	256	241.0	86.2
7	06.6	02.4	57	53.7	19.2	07	100.7	36.0	57	147.8	52.9	07	194.9	69.7	57	242.0	86.6
8	07.5	02.7	58	54.6	19.5	08	101.7	36.4	58	148.8	53.2	08	195.8	70.1	58	242.9	86.9
9	08.5	03.0	59	55.5	19.9	09	102.6	36.7	59	149.7	53.6	09	196.8	70.4	59	243.8	87.2
10	09.4	03.4	60	56.5	20.2	10	103.6	37.0	60	150.6	53.9	10	197.7	70.7	60	244.8	87.6
11	10.4	03.7	61	57.4	20.5	111	104.5	37.4	161	151.6	54.2	211	198.7	71.1	261	245.7	87.9
12	11.3	04.0	62	58.4	20.9	12	105.4	37.7	62	152.5	54.6	12	199.6	71.4	62	246.7	88.2
13	12.2	04.4	63	59.3	21.2	13	106.4	38.1	63	153.5	54.9	13	200.5	71.7	63	247.6	88.6
14	13.2	04.7	64	60.3	21.6	14	107.3	38.4	64	154.4	55.2	14	201.5	72.1	64	248.6	88.9
15	14.1	05.1	65	61.2	21.9	15	108.3	38.7	65	155.3	55.6	15	202.4	72.4	65	249.5	89.2
16	15.1	05.4	66	62.1	22.2	116	109.2	39.1	166	156.3	55.9	216	203.4	72.7	266	250.4	89.6
17	16.0	05.7	67	63.1	22.6	17	110.2	39.4	67	157.2	56.2	17	204.3	73.1	67	251.4	89.9
18	17.0	06.1	68	64.0	22.9	18	111.1	39.7	68	158.2	56.6	18	205.2	73.4	68	252.3	90.3
19	17.9	06.4	69	65.0	23.2	19	112.0	40.1	69	159.1	56.9	19	206.2	73.8	69	253.3	90.6
20	18.8	06.7	70	65.9	23.6	20	113.0	40.4	70	160.1	57.3	20	207.1	74.1	70	254.2	90.9
21	19.8	07.1	71	56.8	23.9	121	113.9	40.8	171	161.0	57.6	221	208.1	74.4	271	255.1	91.3
22	20.7	07.4	72	67.8	24.2	22	114.9	41.1	72	161.9	57.9	22	209.0	74.8	72	256.1	91.6
23	21.7	07.7	73	68.7	24.6	23	115.8	41.4	73	162.9	58.3	23	210.0	75.1	73	257.0	91.9
24	22.6	08.1	74	69.7	24.9	24	116.7	41.8	74	163.8	58.6	24	210.9	75.4	74	258.0	92.3
25	23.5	08.4	75	70.7	25.3	25	117.7	42.1	75	164.8	58.9	25	211.8	75.8	75	258.9	92.6
26	24.5	08.8	76	71.6	25.6	126	118.6	42.4	176	165.7	59.3	226	212.8	76.1	276	259.9	93.0
27	25.4	09.1	77	72.5	25.9	27	119.6	42.8	77	166.6	59.6	27	213.7	76.5	77	260.8	93.3
28	26.4	09.4	78	73.4	26.3	28	120.5	43.1	78	167.6	60.0	28	214.7	76.8	78	261.7	93.6
29	27.3	09.8	79	74.4	26.6	29	121.5	43.4	79	168.5	60.3	29	215.6	77.1	79	262.7	94.0
30	28.2	10.1	80	75.3	26.9	30	122.4	43.8	80	169.5	60.6	30	216.5	77.5	80	263.6	94.3
31	29.2	10.4	81	76.3	27.3	131	123.3	44.1	181	170.4	61.0	231	217.5	77.8	281	264.6	94.6
32	30.1	10.8	82	77.2	27.6	32	124.3	44.5	82	171.4	61.3	32	218.4	78.1	82	265.5	95.0
33	31.1	11.1	83	78.1	28.0	33	125.2	44.8	83	172.3	61.6	33	219.4	78.5	83	266.4	95.3
34	32.0	11.5	84	79.1	28.3	34	126.2	45.1	84	173.2	62.0	34	220.3	78.8	84	267.4	95.6
35	33.0	11.8	85	80.0	28.6	35	127.1	45.5	85	174.2	62.3	35	221.3	79.1	85	268.3	96.0
36	33.9	12.1	86	81.0	29.0	136	128.0	45.8	186	175.1	62.6	236	222.2	79.5	286	269.2	96.3
37	34.8	12.5	87	81.9	29.3	37	129.0	46.1	87	176.1	63.0	37	223.1	79.8	87	270.2	96.7
38	35.8	12.8	88	82.5	29.6	38	129.9	46.5	88	177.0	63.3	38	224.1	80.2	88	271.2	96.0
39	36.7	13.1	89	83.8	30.0	39	130.9	46.8	89	177.9	63.7	39	225.0	80.5	89	272.1	97.3
40	37.7	13.5	90	84.7	30.3	40	131.8	47.2	90	178.9	64.0	40	226.0	80.8	90	273.0	97.7
41	38.6	13.8	91	85.7	30.6	141	132.8	47.5	191	179.8	64.3	241	226.9	81.2	291	274.0	98.0
42	39.5	14.1	92	86.6	31.0	42	133.7	47.8	92	180.8	64.7	42	227.8	81.5	92	274.9	98.3
43	40.5	14.5	93	87.6	31.3	43	134.6	48.2	93	181.7	65.0	43	228.8	81.8	93	275.9	98.7
44	41.4	14.8	94	88.5	31.7	44	135.6	48.5	94	182.6	65.3	44	229.7	82.2	94	276.8	99.0
45	42.4	15.2	95	89.4	32.0	45	136.5	48.8	95	183.6	65.7	45	230.7	82.5	95	277.7	99.4
46	43.3	15.5	96	90.4	32.3	146	137.5	49.2	196	184.5	66.0	246	231.6	82.9	296	278.7	99.7
47	44.3	15.8	97	91.3	32.7	47	138.4	49.5	97	185.5	66.3	47	232.5	83.2	97	279.6	100.0
48	45.2	16.2	98	92.3	33.0	48	139.3	49.8	98	186.4	66.7	48	233.5	83.5	98	280.6	100.4
49	46.1	16.5	99	93.2	33.3	49	140.3	50.2	99	187.4	67.0	49	234.4	83.9	99	281.5	100.7
50	47.1	16.8	100	94.2	33.7	150	141.2	50.5	200	188.3	67.4	250	235.4	84.2	300	282.5	101.0
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 6   Points.

Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep	Diff	Lat	Dep
1	00,9	00.4	51	47,1	19.5	101	93,3	38.7	151	139 5	57,8	201	185.7	76.9	251	231.9	96.1
2	01.8	00,8	52	48.0	19 9	02	94,2	39.0	52	140.4	58.2	02	186.6	77.3	52	232.8	96.4
3	02.8	01,1	53	49 0	20.3	03	95.2	39.4	53	141,4	58.6	03	187.6	77.7	53	233 8	96.8
4	03.7	01.5	54	49.9	20.7	04	96.1	39.8	54	142.3	58.9	04	188.5	78.1	54	234.7	97.2
5	04.6	01.9	55	50.8	21.0	05	97.0	40.2	55	143.2	59.3	05	189.4	78.5	55	235.6	97 6
6	05.5	02.3	56	51 7	21.4	106	97.9	40.6	156	144.1	59.7	206	190.3	78.8	256	236.5	98.0
7	06.5	02.7	57	52.7	21.8	07	98.9	41 0	57	145.1	60,1	07	191.3	79.2	57	237.5	98.4
8	07.4	03.1	58	53 6	22.2	08	99.8	41.3	58	146.0	60.5	08	192.2	79 6	58	238.4	98.7
9	08.3	03.4	59	54.5	22.6	09	100.	41.7	59	146.9	60.9	09	193.1	80.0	59	239.3	99,1
10	09.2	03.8	60	55.4	23.0	10	101.6	42,1	60	147.8	61.2	10	194,0	80.4	60	240.2	99.5
11	10.2	04,2	61	56.4	23.3	111	102.6	42.5	161	148.8	61,6	211	194.9	80.8	261	241.1	99.9
12	11.1	04,6	62	57.3	23.7	12	103.5	42.9	62	149.7	62.0	12	195.9	81.1	62	242,1	100,3
13	12.0	05.0	63	58.2	24.1	13	104.4	43.2	63	150.6	62.4	13	196.8	81.5	63	243.0	100.7
14	12.9	05.4	64	59.1	24.5	14	105.3	43.6	64	151.5	62.8	14	197.7	81,9	64	243.9	101,0
15	13.9	05,7	65	60.1	24.9	15	106,3	44.0	65	152.5	63.1	15	198.6	82.3	65	244.8	101.4
16	14.8	06.1	66	61.0	25.3	116	107.2	44.4	166	153.4	63,5	216	199.6	82.7	266	245.8	101,8
17	15.7	06.5	67	61.9	25 6	17	108.1	44.8	67	154.3	63.9	17	200,5	83.0	67	246.7	102 2
18	16.6	06.9	68	62.8	26.0	18	109.0	45.2	68	155.2	64.3	18	201.4	83.4	68	247.6	102.6
19	17.6	07.3	69	63.8	26.4	19	109.9	45.5	69	156.1	64.7	19	202.3	83.8	69	248.5	103.0
20	18 5	07.7	70	64.7	26.8	20	110.9	45.9	70	157,1	65.1	20	203,3	84.2	70	249.5	103.3
21	19.4	08,0	71	65.6	27.2	121	111.8	46.3	171	158.0	65.4	221	204.2	84.6	271	250 4	103.7
22	20.3	08.4	72	66.5	27.6	22	112.7	46.7	72	158.9	65.8	22	205.1	85.0	72	251.3	104.1
23	21.3	08.8	73	67.5	27,9	23	113.6	47.1	73	159.8	66.2	23	206.0	85.3	73	252.2	104.5
24	22.2	09.2	74	68.4	28.3	24	114.6	47.5	74	160.8	66.6	24	207.0	85.7	74	253.2	104,9
25	23.1	09.6	75	69.3	28.7	25	115.5	47.8	75	161.7	67,0	25	107,9	86 1	75	254.1	105.2
26	24,0	10.0	76	70.2	29.1	126	116,4	48.2	176	162.6	67.4	226	208.8	86.5	276	255.0	105.6
27	24.9	10.3	77	71.1	29.5	27	117.3	48.6	77	163.5	67.7	27	209.7	86.9	77	255.9	106.0
28	25.9	10,7	78	72.1	29.9	28	118.3	49.0	78	164.5	68,1	28	210.7	87.3	78	256.9	106.4
29	26.8	11.1	79	73.0	30.2	29	119.2	49.4	79	165.4	68.5	29	210.6	87.6	79	257.8	106,8
30	27.7	11.5	80	73,9	30.6	30	120.1	49.8	80	166.3	68.9	30	211.5	88.0	8.	258.7	107.2
31	28.6	11.9	81	74.8	31.0	131	121.0	50.1	181	167.2	69.3	231	213.4	88.4	281	259.6	107.5
32	29.6	12.2	82	75.8	31.4	32	122.0	50.5	82	168.2	69.7	32	214.4	88.8	82	260.6	107.9
33	30.5	12.6	83	76.7	31.8	33	122,9	50.9	83	169.1	70.0	33	215.3	89.2	83	261.5	108.3
34	31.4	13.0	84	77.6	32.1	34	123.8	51.3	84	170.0	70.4	34	216.2	89.6	84	262.4	108.7
35	32.3	13.4	85	78.5	32.5	35	124.7	51.7	85	170.9	70.8	35	217.1	89.9	85	263.3	109,1
36	33.3	13.8	86	79.5	32.9	136	125.7	52.0	186	171.9	71.2	236	218.0	90.3	286	264.2	109.5
37	34.2	14.2	87	80.4	33.3	37	126.6	52.4	87	172.8	71.6	37	219.0	90.7	87	265.2	109.8
38	35.1	14.5	88	81,3	33.7	38	127.5	52.8	88	173.7	72.0	38	219.9	91.1	88	266,1	110.2
39	36.0	14.9	89	82.2	34.1	39	128.4	53.2	89	174.6	72,3	39	220.8	91,5	89	267.0	110.6
40	37.0	15.3	90	83.2	34.4	40	129.4	53.6	90	175.6	72.7	40	221.7	91.9	90	267.9	111.0
41	37.9	15.7	91	84.1	34.8	141	130,3	54.0	191	176.5	73.1	241	222.7	92.2	291	268.9	111.4
42	38.8	16.1	92	85.0	35.2	42	131.2	54.3	92	177.4	73.5	42	223.6	92.6	92	269.8	111.8
43	39.7	16.5	93	85.9	35.6	43	132,1	54.7	93	178.3	73.9	43	224.5	93.0	93	270.7	112.1
44	40.6	16.8	94	86.9	36.0	44	133.0	55.1	94	179.2	74.2	44	225.4	93.4	94	271.6	112.5
45	41.6	17.2	95	87.8	36.4	45	134.0	55.5	95	180.2	74.6	45	226.4	93.8	95	272.6	112,9
46	42.5	17,6	96	88.7	36.7	146	134.9	55.9	196	181.1	75.0	246	227.3	94.1	296	273.5	113.3
47	43.4	18.0	97	89.6	37.1	47	135.8	56.3	97	182.0	75,4	47	228.2	94.5	97	274.4	113.7
48	44.4	18.4	98	90.6	37.5	48	136.7	56.6	98	182.9	75.8	48	229.1	94.9	98	275.3	114.0
49	45.3	18.8	99	91.5	37.9	49	137.7	57.0	99	183.9	76.2	49	230.1	95,3	99	276.3	114,4
50	46.2	19.1	100	92.4	38,3	150	138.6	57.4	200	184.8	76.5	250	231.0	95.7	300	277.2	114.8
Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat	Diff	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.4	51	46.1	21.8	101	91.3	43.2	151	136.5	64.6	201	181.7	85.9	251	226.9	107.3
2	01.8	00.9	52	47.0	22.2	02	92.2	43.6	52	137.4	65.0	02	182.6	86.4	52	227.8	107.8
3	02.7	01.3	53	47.9	22.7	03	93.1	44.0	53	138.3	65.4	03	183.5	86.8	53	228.7	108.2
4	03.6	01.7	54	48.8	23.1	04	94.0	44.5	54	139.2	65.8	04	184.4	87.2	54	229.6	108.6
5	04.5	02.1	55	49.7	23.5	05	94.9	44.9	55	140.1	66.3	05	185.3	87.7	55	230.5	109.0
6	05.4	02.6	56	50.6	23.9	106	95.8	45.3	156	141.0	66.7	206	186.2	88.1	256	231.4	109.5
7	06.3	03.0	57	51.5	24.4	07	96.7	45.8	57	141.9	67.1	07	187.1	88.5	57	232.3	109.9
8	07.2	03.4	58	52.4	24.8	08	97.6	46.2	58	142.8	67.6	08	188.0	88.9	58	233.2	110.3
9	08.1	03.8	59	53.3	25.2	09	98.5	46.6	59	143.7	68.0	09	188.9	89.4	59	234.1	110.7
10	09.0	04.3	60	54.2	25.7	10	99.4	47.0	60	144.6	68.4	10	189.8	89.8	60	235.0	111.2
11	09.9	04.7	61	55.1	26.1	111	100.3	47.5	161	145.5	68.8	211	190.7	90.2	261	235.9	111.6
12	10.8	05.1	62	56.0	26.5	12	101.2	47.9	62	146.4	69.3	12	191.6	90.6	62	236.8	112.0
13	11.8	05.6	63	57.0	26.9	13	102.1	48.3	63	147.3	69.7	13	192.5	91.1	63	237.7	112.5
14	12.7	06.0	64	57.9	27.4	14	103.0	48.7	64	148.2	70.1	14	193.4	91.5	64	238.6	112.9
15	13.6	06.4	65	58.8	27.8	15	103.9	49.2	65	149.1	70.6	15	194.3	91.9	65	239.5	113.3
16	14.5	06.8	66	59.7	28.2	116	104.8	49.6	166	150.0	71.0	216	195.2	92.4	266	240.4	113.7
17	15.4	07.3	67	60.6	28.6	17	105.8	50.0	67	151.0	71.4	17	196.1	92.8	67	241.3	114.2
18	16.3	07.7	68	61.5	29.1	18	106.7	50.5	68	151.9	71.8	18	197.0	93.2	68	242.2	114.6
19	17.2	08.1	69	62.4	29.5	19	107.6	50.9	69	152.8	72.3	19	197.9	93.6	69	243.1	115.0
20	18.1	08.6	70	63.3	29.9	20	108.5	51.3	70	153.7	72.7	20	198.8	94.1	70	244.0	115.5
21	19.0	09.0	71	64.2	30.4	121	109.4	51.7	171	154.6	73.1	221	199.8	94.5	271	245.0	115.9
22	19.9	09.4	72	65.1	30.8	22	110.3	52.2	72	155.5	73.5	22	200.7	94.9	72	245.9	116.3
23	20.8	09.8	73	66.0	31.2	23	111.2	52.6	73	156.4	74.0	23	201.6	95.4	73	246.8	116.7
24	21.7	10.3	74	66.9	31.6	24	112.1	53.0	74	157.3	74.4	24	202.5	95.8	74	247.7	117.2
25	22.6	10.7	75	67.8	32.1	25	113.0	53.5	75	158.2	74.8	25	203.4	96.2	75	248.6	117.6
26	23.5	11.1	76	68.7	32.5	126	113.9	53.9	176	159.1	75.3	226	204.3	96.6	276	249.5	118.0
27	24.4	11.5	77	69.6	32.9	27	114.8	54.3	77	160.0	75.7	27	205.2	97.1	77	250.4	118.4
28	25.3	12.0	78	70.5	33.4	28	115.7	54.7	78	160.9	76.1	28	206.1	97.5	78	251.3	118.9
29	26.2	12.4	79	71.4	33.8	29	116.6	55.2	79	161.8	76.5	29	207.0	97.9	79	252.2	119.3
30	27.1	12.8	80	72.3	34.2	30	117.5	55.6	80	162.7	77.0	30	207.9	98.3	80	253.1	119.7
31	28.0	13.3	81	73.2	34.6	131	118.4	56.0	181	163.6	77.4	231	208.8	98.8	281	254.0	120.2
32	28.9	13.7	82	74.1	35.1	32	119.3	56.4	82	164.5	77.8	32	209.7	99.1	82	254.9	120.6
33	29.8	14.1	83	75.0	35.5	33	120.2	56.9	83	165.4	78.2	33	210.6	99.6	83	255.8	121.0
34	30.7	14.5	84	75.9	35.9	34	121.1	57.3	84	166.3	78.7	34	211.5	100.1	84	256.7	121.4
35	31.6	15.0	85	76.8	36.3	35	122.0	57.7	85	167.2	79.1	35	212.4	100.5	85	257.6	121.9
36	32.5	15.4	86	77.7	36.8	136	122.9	58.2	186	168.1	79.5	236	213.3	100.9	286	258.5	122.3
37	33.4	15.8	87	78.6	37.2	37	123.8	58.6	87	169.0	80.0	37	214.2	101.3	87	259.4	122.7
38	34.4	16.2	88	79.6	37.6	38	124.7	59.0	88	169.9	80.4	38	215.1	101.8	88	260.3	123.1
39	35.3	16.7	89	80.5	38.1	39	125.6	59.4	89	170.8	80.8	39	216.0	102.2	89	261.2	123.6
40	36.2	17.1	90	81.4	38.5	40	126.5	59.9	90	171.7	81.2	40	216.9	102.6	90	262.1	124.0
41	37.1	17.5	91	82.3	38.9	141	127.4	60.3	191	172.6	81.7	241	217.8	103.0	291	263.0	124.4
42	38.0	18.0	92	83.2	39.3	42	128.4	60.7	92	173.6	82.1	42	218.7	103.5	92	263.9	124.9
43	38.9	18.4	93	84.1	39.8	43	129.3	61.1	93	174.5	82.5	43	219.6	103.9	93	264.8	125.3
44	39.8	18.8	94	85.0	40.2	44	130.2	61.6	94	175.4	83.0	44	220.5	104.3	94	265.7	125.7
45	40.7	19.2	95	85.9	40.6	45	131.1	62.0	95	176.3	83.4	45	221.4	104.8	95	266.6	126.1
46	41.6	19.7	96	86.8	41.0	146	132.0	62.4	196	177.2	83.8	246	222.4	105.2	296	267.6	126.6
47	42.5	20.1	97	87.7	41.5	47	132.9	62.9	97	178.1	84.2	47	223.3	105.6	97	268.5	127.0
48	43.4	20.5	98	88.6	41.9	48	133.8	63.3	98	179.0	84.7	48	224.2	106.0	98	269.4	127.4
49	44.3	21.0	99	89.5	42.3	49	134.7	63.7	99	179.9	85.1	49	225.1	106.5	99	270.3	127.8
50	45.2	21.4	100	90.4	42.8	150	135.6	64.1	200	180.8	85.5	250	226.0	106.9	300	271.2	128.3
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 5 ¾ Points.

D ft	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat.	Dep	Dift	Lat	Dep
1	00.9	00.5	51	45.0	24.0	101	89.1	47.6	151	133.2	71.1	201	177.3	94.7	251	221.4	118.3
2	01.8	00.9	52	45.9	24.5	02	90.0	48.1	52	134.1	71.6	02	178.2	95.2	52	222.3	118.7
3	02.6	01.4	53	46.7	25.0	03	90.8	48.5	53	134.9	72.1	03	179.0	95.6	53	223.1	119.2
4	03.5	01.9	54	47.6	25.4	04	91.7	49.0	54	135.8	72.6	04	179.9	96.1	54	224.0	119.7
5	04.4	02.4	55	48.5	25.9	05	92.6	49.5	55	136.7	73.0	05	180.8	96.6	55	224.9	120.1
6	05.3	02.8	56	49.4	26.4	106	93.5	49.9	156	137.6	73.5	206	181.7	97.1	256	225.8	120.6
7	06.2	03.3	57	50.3	26.9	07	94.4	50.4	57	138.5	74.0	07	182.6	97.5	57	226.7	121.1
8	07.1	03.8	58	51.2	27.3	08	95.3	50.9	58	139.4	74.4	08	183.5	98.0	58	227.6	121.6
9	07.9	04.2	59	52.0	27.8	09	96.1	51.4	59	140.2	74.9	09	184.3	98.5	59	228.4	122.0
10	08.8	04.7	60	52.9	28.3	10	97.0	51.8	60	141.1	75.4	10	185.2	98.9	60	229.3	122.5
11	09.7	05.2	61	53.8	28.7	111	97.9	52.3	161	142.0	75.9	211	186.1	99.4	261	230.2	123.0
12	10.6	05.7	62	54.7	29.2	12	98.8	52.8	62	142.9	76.3	12	187.0	99.9	62	231.1	123.4
13	11.5	06.1	63	55.6	29.7	13	99.7	53.2	63	143.8	76.8	13	187.9	100.4	63	232.0	123.9
14	12.3	06.6	64	56.4	30.2	14	100.5	53.7	64	144.6	77.3	14	188.7	100.8	64	232.8	124.4
15	13.2	07.1	65	57.3	30.6	15	101.4	54.2	65	145.5	77.7	15	189.6	101.3	65	233.7	124.9
16	14.1	07.5	66	58.2	31.1	116	102.3	54.7	166	146.4	78.2	216	190.5	101.8	266	234.6	125.3
17	15.0	08.0	67	59.1	31.6	17	103.2	55.1	67	147.3	78.7	17	191.4	102.2	67	235.5	125.8
18	15.9	08.5	68	60.0	32.0	18	104.1	55.6	68	148.2	79.2	18	192.3	102.7	68	236.4	126.3
19	16.8	09.0	69	60.9	32.5	19	105.0	56.1	69	149.1	79.6	19	193.2	103.2	69	237.3	126.7
20	17.6	09.4	70	61.7	33.0	20	105.8	56.5	70	149.9	80.1	20	194.0	103.7	70	238.1	127.2
21	18.5	09.9	71	62.6	33.5	121	106.7	57.0	171	150.8	80.6	221	194.9	104.1	271	239.0	127.7
22	19.4	10.4	72	63.5	33.9	22	107.6	57.5	72	151.7	81.0	22	195.8	104.6	72	239.9	128.2
23	20.3	10.8	73	64.4	34.4	23	108.5	58.0	73	152.6	81.5	23	196.7	105.1	73	240.8	128.6
24	21.2	11.3	74	65.3	34.9	24	109.4	58.4	74	153.5	82.0	24	197.6	105.5	74	241.7	129.1
25	22.1	11.8	75	66.2	35.3	25	110.3	58.9	75	154.3	82.5	25	198.4	106.0	75	242.5	129.6
26	22.9	12.3	76	67.0	35.8	126	111.1	59.4	176	155.2	82.9	226	199.3	106.5	276	243.4	130.0
27	23.8	12.7	77	67.9	36.3	27	112.0	59.8	77	156.1	83.4	27	200.2	107.0	77	244.3	130.5
28	24.7	13.2	78	68.8	36.8	28	112.9	60.3	78	157.0	83.9	28	201.1	107.4	78	245.2	131.0
29	25.6	13.7	79	69.7	37.2	29	113.8	60.8	79	157.9	84.3	29	202.0	107.9	79	246.1	131.5
30	26.5	14.1	80	70.6	37.7	30	114.7	61.3	80	158.8	84.8	30	202.9	108.4	80	247.0	131.9
31	27.3	14.6	81	71.4	38.2	131	115.5	61.7	181	159.6	85.3	231	203.7	108.8	281	247.8	132.4
32	28.2	15.1	82	72.3	38.6	32	116.4	62.2	82	160.5	85.8	32	204.6	109.3	82	248.7	132.9
33	29.1	15.5	83	73.2	39.1	33	117.3	62.7	83	161.4	86.2	33	205.5	109.8	83	249.6	133.3
34	30.0	16.0	84	74.1	39.6	34	118.2	63.1	84	162.3	86.7	34	206.4	110.3	84	250.5	133.8
35	30.9	16.5	85	75.0	40.1	35	119.1	63.6	85	163.2	87.2	35	207.3	110.7	85	251.4	134.3
36	31.8	17.0	86	75.9	40.5	136	120.0	64.1	186	164.1	87.6	236	208.2	111.2	286	252.3	134.8
37	32.6	17.4	87	76.7	41.0	37	120.8	64.5	87	164.9	88.1	37	209.0	111.7	87	253.1	135.2
38	33.5	17.9	88	77.6	41.5	38	121.7	65.0	88	165.8	88.6	38	209.9	112.1	88	254.0	135.7
39	34.4	18.4	89	78.5	41.9	39	122.6	65.5	89	166.7	89.1	39	210.8	112.6	89	254.9	136.2
40	35.3	18.8	90	79.4	42.4	40	123.5	66.0	90	167.6	89.5	40	211.7	113.1	90	255.8	136.6
41	36.2	19.3	91	80.3	42.9	141	124.4	66.4	191	168.5	90.0	241	212.6	113.5	291	256.7	137.1
42	37.0	19.8	92	81.1	43.4	42	125.2	66.9	92	169.3	90.5	42	213.4	114.0	92	257.5	137.6
43	37.9	20.3	93	82.0	43.8	43	126.1	67.4	93	170.2	90.9	43	214.3	114.5	93	258.4	138.1
44	38.8	20.7	94	82.9	44.3	44	127.0	67.8	94	171.1	91.4	44	215.2	115.0	94	259.3	138.5
45	39.7	21.2	95	83.8	44.8	45	127.9	68.3	95	172.0	91.9	45	216.1	115.4	95	260.2	139.0
46	40.6	21.7	96	84.7	45.2	146	128.8	68.8	196	172.9	92.4	246	217.0	115.9	296	261.1	139.5
47	41.5	22.1	97	85.6	45.7	47	129.7	69.3	97	173.8	92.8	47	217.9	116.4	97	262.0	139.9
48	42.3	22.6	98	86.4	46.2	48	130.5	69.7	98	174.6	93.3	48	218.7	116.8	98	262.8	140.4
49	43.2	23.1	99	87.3	46.6	49	131.4	70.2	99	175.5	93.8	49	219.6	117.3	99	263.7	140.9
50	44.1	23.6	100	88.2	47.1	150	132.3	70.7	200	176.4	94.2	250	220.5	117.8	300	264.6	141.4
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.9	00.6	51	43.7	26.2	101	86.6	51.9	151	129.5	77.6	201	172.4	103.3	251	215.3	129.0
2	01.7	01.0	52	44.6	26.7	02	87.5	52.4	52	130.4	78.1	02	173.3	103.8	52	216.1	129.5
3	02.6	01.6	53	45.5	27.2	03	88.3	52.9	53	131.2	78.6	03	174.1	104.3	53	217.0	130.0
4	03.4	02.1	54	46.3	27.8	04	89.2	53.4	54	132.1	79.1	04	175.0	104.8	54	217.9	130.5
5	04.3	02.6	55	47.2	28.3	05	90.1	54.0	55	132.9	79.7	05	175.8	105.4	55	218.7	131.0
6	05.1	03.1	56	48.0	28.8	106	90.9	54.5	156	133.8	80.2	206	176.7	105.9	256	219.6	131.6
7	06.0	03.6	57	48.9	29.3	07	91.8	55.0	57	134.7	80.7	07	177.5	106.4	57	220.4	132.1
8	06.9	04.1	58	49.7	29.8	08	92.6	55.5	58	135.5	81.2	08	178.4	106.9	58	221.3	132.6
9	07.7	04.6	59	50.6	30.3	09	93.5	56.0	59	136.4	81.7	09	179.3	107.4	59	222.1	133.1
10	08.6	05.1	60	51.5	30.8	10	94.3	56.5	60	137.2	82.2	10	180.1	107.9	60	223.0	133.6
11	09.4	05.7	61	52.3	31.4	111	95.2	57.0	161	138.1	82.7	211	181.0	108.4	261	223.9	134.1
12	10.3	06.2	62	53.2	31.9	12	96.1	57.6	62	138.9	83.3	12	181.8	109.0	62	224.7	134.6
13	11.2	06.7	63	54.0	32.4	13	96.9	58.1	63	139.8	83.8	13	182.7	109.5	63	225.6	135.2
14	12.0	07.2	64	54.9	32.9	14	97.8	58.6	64	140.7	84.3	14	183.5	110.0	64	226.4	135.7
15	12.9	07.7	65	55.8	33.4	15	98.6	59.1	65	141.5	84.8	15	184.4	110.5	65	227.3	136.2
16	13.7	08.2	66	56.6	33.9	116	99.5	59.6	166	142.4	85.3	216	185.3	111.0	266	228.1	136.7
17	14.6	08.7	67	57.5	34.4	17	100.4	60.1	67	143.2	85.8	17	186.1	111.6	67	229.0	137.2
18	15.4	09.3	68	58.3	35.0	18	101.2	60.6	68	144.1	86.3	18	187.0	112.0	68	229.9	137.7
19	16.3	09.8	69	59.2	35.5	19	102.1	61.2	69	145.0	86.9	19	187.8	112.6	69	230.7	138.2
20	17.2	10.3	70	60.0	36.0	20	102.9	61.7	70	145.8	87.4	20	188.7	113.1	70	231.6	138.8
21	18.0	10.8	71	60.9	36.5	121	103.8	62.2	171	146.7	87.9	221	189.6	113.6	271	232.4	139.3
22	18.9	11.3	72	61.8	37.0	22	104.6	62.7	72	147.5	88.4	22	190.4	114.1	72	233.3	139.8
23	19.7	11.8	73	62.6	37.6	23	105.5	63.2	73	148.4	88.9	23	191.3	114.6	73	234.2	140.3
24	20.6	12.3	74	63.5	38.0	24	106.4	63.7	74	149.2	89.4	24	192.1	115.1	74	235.0	140.8
25	21.4	12.9	75	64.3	38.6	25	107.2	64.2	75	150.1	89.9	25	193.0	115.6	75	235.9	141.3
26	22.3	13.4	76	65.2	39.1	126	108.1	64.8	176	151.0	90.4	226	193.8	116.1	276	236.7	141.8
27	23.2	13.9	77	66.0	39.6	27	108.9	65.3	77	151.8	91.0	27	194.7	116.7	77	237.6	142.4
28	24.0	14.4	78	66.9	40.1	28	109.8	65.8	78	152.7	91.5	28	195.6	117.2	78	238.4	142.9
29	24.9	14.9	79	67.8	40.6	29	110.6	66.3	79	153.5	92.0	29	196.4	117.7	79	239.3	143.4
30	25.7	15.4	80	68.6	41.1	30	111.5	66.8	80	154.4	92.5	30	197.3	118.2	80	240.2	143.9
31	26.6	15.9	81	69.5	41.6	131	112.4	67.3	181	155.3	93.0	231	198.1	118.7	281	241.0	144.4
32	27.4	16.4	82	70.3	42.1	32	113.2	67.8	82	156.1	93.5	32	199.0	119.2	82	241.9	144.9
33	28.3	17.0	83	71.2	42.7	33	114.1	68.4	83	157.0	94.0	33	199.8	119.7	83	242.7	145.4
34	29.2	17.5	84	72.0	43.2	34	114.9	68.9	84	157.8	94.6	34	200.7	120.3	84	243.6	146.0
35	30.0	18.0	85	72.9	43.7	35	115.8	69.4	85	158.7	95.1	35	201.6	120.8	85	244.4	146.5
36	30.9	18.5	86	73.8	44.2	136	116.6	69.9	186	159.5	95.6	236	202.4	121.3	286	245.3	147.0
37	31.7	19.0	87	74.6	44.7	37	117.5	70.4	87	160.4	96.1	37	203.3	121.8	87	246.2	147.5
38	32.6	19.5	88	75.5	45.2	38	118.4	70.9	88	161.2	96.6	38	204.1	122.3	88	247.0	148.0
39	33.5	20.0	89	76.3	45.7	39	119.2	71.4	89	162.1	97.1	39	205.0	122.8	89	247.9	148.6
40	34.3	20.6	90	77.2	46.3	40	120.1	72.0	90	163.0	97.6	40	205.8	123.3	90	248.7	149.0
41	35.2	21.1	91	78.1	46.8	141	120.9	72.5	191	163.8	98.2	241	206.7	123.9	291	249.6	149.6
42	36.0	21.6	92	78.9	47.3	42	121.8	73.0	92	164.7	98.7	42	207.6	124.4	92	250.4	150.1
43	36.9	22.1	93	79.8	47.8	43	122.7	73.5	93	165.5	99.2	43	208.4	124.9	93	251.3	150.6
44	37.7	22.6	94	80.6	48.3	44	123.5	74.0	94	166.4	99.7	44	209.3	125.4	94	252.2	151.1
45	38.6	23.1	95	81.5	48.8	45	124.4	74.6	95	167.3	100.2	45	210.1	125.9	95	253.0	151.6
46	39.5	23.6	96	82.3	49.3	146	125.2	75.0	196	168.1	100.7	246	211.0	126.4	296	253.9	152.1
47	40.3	24.2	97	83.2	49.9	47	126.1	75.6	97	169.0	101.2	47	211.9	126.9	97	254.7	152.6
48	41.2	24.7	98	84.1	50.4	48	126.9	76.1	98	169.8	101.8	48	212.7	127.4	98	255.6	153.1
49	42.0	25.2	99	84.9	50.9	49	127.8	76.6	99	170.7	102.3	49	213.6	128.0	99	256.5	153.7
50	42.9	25.7	100	85.8	51.4	150	128.7	77.1	200	171.5	102.8	250	214.4	128.5	300	257.3	154.2
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00,6	51	42.4	28.3	101	84.0	56.1	151	125.5	83.9	201	167.1	111.7	251	208.7	139.4
2	01.7	01.1	52	43.2	28.9	02	84.8	56.7	52	126.4	84.4	02	167.9	112.2	52	209 5	140.0
3	02.5	01.7	53	44.1	29.4	03	85.6	57.2	53	127.2	85.0	03	168.8	112.8	53	210.3	140.5
4	03.3	02.2	54	44.9	30.0	04	86.5	57.8	54	128.0	85.5	04	169.6	113.3	54	211.2	141.1
5	04.2	02.8	55	45.7	30.6	05	87.3	58.3	55	128.9	86 1	05	170.4	113.9	55	212.0	141.7
6	05.0	03.3	56	46.6	31.1	106	88.1	58.9	156	129.7	86.7	206	171.3	114.4	256	212.8	142.2
7	05.8	03.9	57	47.4	31.7	07	89.0	59.4	57	130.5	87.2	07	172.1	115.0	57	213.7	142.8
8	06.7	04.4	58	48.2	32.2	08	89,8	60.0	58	131.4	87.8	08	172.9	115.5	58	214.5	143.3
9	07.5	05.0	59	49.1	32.8	09	90.6	60.5	59	132.2	88.3	09	173.8	116.1	59	215.3	143.9
10	08.3	05.6	60	49.9	33.3	10	91.4	61.1	60	133.0	88.9	10	174.6	116.7	60	216.1	144.4
11	09.1	06.1	61	50.7	33.9	111	92.3	61.7	161	133.8	89 4	211	175.4	117,2	261	217.0	145.0
12	10,0	06,7	62	51.5	34.4	12	93.1	62.2	62	134.7	90.0	12	176.2	117.8	62	217.8	145.5
13	10.8	07.2	63	52.4	35.0	13	93.9	62.8	63	135.5	90.5	13	177.1	118.3	63	218.6	146.1
14	11.6	07.8	64	53.2	35.6	14	94.8	63 3	64	136.3	91.1	14	177.9	118.9	64	219.5	146.7
15	12.5	08.3	65	54.0	36.1	15	95.6	63.9	65	137.2	91.7	15	178.7	119.4	65	220.3	147.2
16	13.3	08.9	66	54.9	36.7	116	96.4	64.4	166	138.0	92.2	216	179.6	120.0	266	221,1	147.8
17	14.1	09.4	67	55.7	37.2	17	97.3	65.0	67	138.8	92.8	17	180.4	120.5	67	222.0	148.3
18	15.0	10.0	68	56.5	37.8	18	98.1	65.5	68	139.7	93.3	18	181.2	121.1	68	222.8	148.9
19	15.8	10.6	69	57.4	38.3	19	98.9	66.1	69	140.5	93.9	19	182.1	121.7	69	223.6	149.4
20	16.6	11.1	70	58.2	38.9	20	99.8	66.7	70	141.3	94.4	20	182.9	122.2	70	224.5	150.0
21	17.5	11.7	71	59.0	39.4	121	100.6	67,2	171	142.2	95.0	221	183.7	122.8	271	225.3	150.5
22	18.3	12.2	72	59.9	40.0	22	101.4	67.8	72	143.0	95.5	22	184.6	123 3	72	226.1	151.1
23	19.1	12.8	73	60.7	40.6	23	102.3	68.3	73	143.8	96.1	23	185.4	123.9	73	227 0	151.7
24	20.0	13.3	74	61.5	41.1	24	103.1	68.9	74	144.7	96.7	24	186.2	124.4	74	227.8	152.2
25	20.8	13.9	75	62.4	41.7	25	103.9	69.4	75	145.5	97.2	25	187.1	125,0	75	228.6	152.8
26	21.6	14.4	76	63.2	42.2	126	104.8	70.0	176	146.3	97.8	226	187.9	125.5	276	229.4	153.3
27	22.4	15,0	77	64.0	42.8	27	105.6	70.5	77	147.1	98.3	27	188.7	126.1	77	230.0	153.9
28	23.3	15 6	78	64,8	43.3	28	106.4	71.1	78	148.0	98.9	28	189.5	126.7	78	231.1	154.4
29	24.1	16.1	79	65.7	43.9	29	107,2	71.7	79	148.8	99.4	29	190.4	127.2	79	231.9	155.0
30	24.9	16.7	80	66.5	44.4	30	108.1	72.2	80	149.6	100.0	30	191.2	127.8	80	232.8	155.5
31	25 8	17.2	81	67.3	45.0	131	108.9	72.8	181	150.5	100.5	231	192.0	128,3	281	233.6	156.1
32	26,6	17.8	82	68.2	45.6	32	109.7	73.3	82	151.3	101.1	32	192.9	128.9	82	234.4	156.7
33	27.4	18.3	83	69.0	45.1	33	110.6	73.9	83	152.1	101.7	33	193.7	129 4	83	235.3	157.2
34	28.3	18.9	84	69.8	46.7	34	111.4	74.4	84	153.0	102.2	34	194.5	130.0	84	236,1	157.8
35	29.1	19.4	85	70.7	47.2	35	112.2	75.0	85	153.8	102.8	35	195.4	130.5	85	236.9	158.3
36	29,9	20.0	86	71.5	47.8	136	113.1	75.5	186	154.6	103.3	236	196.2	131.1	286	237.8	158.9
37	30.8	20.6	87	72.3	48.3	37	113.9	76.1	87	155.5	103.9	37	197.0	131.7	87	238.6	159.4
38	31.6	21.1	88	73.2	48.9	38	114.7	76.7	88	156.3	104.4	38	197.9	132,2	88	239.4	160.0
39	32.4	21.7	89	74.0	49.4	39	115.6	77.2	89	157.1	105.0	39	198.7	132.8	89	240.3	160.5
40	33.3	22.2	90	74.8	50.0	40	116,4	77.8	90	158.0	105.5	40	199.5	133.3	90	241.1	161.1
41	34.1	22.8	91	75.7	50 6	141	117.2	78.3	191	158.8	106.1	241	200.4	133.9	291	241.9	161.7
42	34.9	23.3	92	76.5	51.1	42	118.1	78.9	92	159.6	106.7	42	201.2	134.4	92	242.8	162.2
43	35.8	23,9	93	77.3	51.7	43	118.9	79.4	93	160.4	107.2	43	202.0	135.0	93	243.6	162.8
44	36.6	24,4	94	78.1	52.2	44	119.7	80.0	94	161.3	107.8	44	202.8	135.5	94	244.4	163.3
45	37.4	25.0	95	79.0	52.8	45	120.5	80.5	95	162.1	108.3	45	203.7	136.1	95	245.2	163.9
46	38.2	25.6	96	79.8	53.3	146	121,4	81.1	196	162.9	108.9	246	204.5	136.7	296	246.1	164.4
47	39.1	26.1	97	80.6	53.9	47	122.2	81.7	97	163.8	109.4	47	205.3	137.2	97	246.9	165.0
48	39,9	26.7	98	81.5	54.4	48	123.0	82.2	98	164.6	110.0	48	206.2	137.8	98	247.7	165.5
49	40.7	27.2	99	82.3	55.0	49	123.9	82.8	99	165.4	110.5	49	207.0	138.3	99	248.5	166.1
50	41.6	27.8	100	83.1	55.6	150	124.7	83.3	200	166.3	111.1	250	207.8	138.9	300	249.4	166.7
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	De	Dift	Lat	Dep	Dift	Lat	Dep	Dift	Lat	Dep
1	00.8	00.6	51	41.0	30.4	101	81.1	60.2	151	121.3	90.0	201	161.4	119,7	251	201.6	149.5
2	01.6	01.2	52	41.8	31.0	02	81.9	60.8	52	122.1	90.6	02	162.2	120.3	52	202.4	150.1
3	02.4	01.8	53	42.6	31.6	03	82.7	61.4	53	122.9	91.1	03	163.0	120.9	53	203.2	150.7
4	03.2	02.4	54	43.4	32.2	04	83.5	62.0	54	123.7	91.7	04	163.8	121.5	54	204.0	151.3
5	04.0	03.0	55	44.2	32.8	05	84.3	62.6	55	124.5	92.3	05	164.6	122.1	55	204.8	151.9
6	04.8	03.6	56	45.0	33.4	106	85.1	63.1	156	125.3	92.9	206	165.4	122.7	256	205.6	152,5
7	05.6	04.2	57	45.8	34.0	07	85.9	63.7	57	126.1	93.5	07	166.2	123.3	57	206.4	153.1
8	06.4	04.8	58	46.6	34.6	08	86.7	64.3	58	126.9	94.1	08	167.0	123.9	58	207.2	153.7
9	07.2	05.4	59	47.4	35.1	09	87.5	64.9	59	127.7	94.7	09	167.8	124.5	59	208.0	154.3
10	08.0	06.0	60	48.2	35.7	10	88.3	65.5	60	128.5	95.3	10	168.6	125,1	60	208.8	154.9
11	08.8	06.6	61	49.0	36.3	111	89.1	66.1	161	129.3	95.9	211	169.4	125.7	261	209.6	155,5
12	09.6	07.1	62	49.8	36.9	12	89.9	66.7	62	130.1	96.5	12	170.2	126.3	62	210.4	156.1
13	10.4	07.7	63	50.6	37.5	13	90.7	67.3	63	130.9	97.1	13	171.0	126.9	63	211.2	156.7
14	11.2	08.3	64	51.4	38.1	14	91.5	67.9	64	131.7	97.7	14	171.8	127.5	64	212.0	157.3
15	12.0	08.9	65	52.2	38.7	15	92.4	68.5	65	132.5	98.3	15	172.7	128.1	65	212.8	157.9
16	12.8	09.5	66	53.0	39.3	116	93.2	69.1	166	133.3	98.9	216	173.5	128.7	266	213.6	158.5
17	13.7	10.1	67	53.8	39.9	17	94.0	69.7	67	134.1	99.5	17	174.3	129.3	67	214.4	159.1
18	14.5	10.7	68	54.6	40.5	18	94.8	70.3	68	134.9	100.1	18	175.1	129.9	68	215.2	159.7
19	15.3	11.3	69	55.4	41.1	19	95.6	70.9	69	135.7	100.7	19	175.9	130.5	69	216.0	160.3
20	16.1	11.9	70	56.2	41.7	20	96.4	71.5	70	136.5	101.3	20	176.7	131,1	70	216.8	160.9
21	16.9	12.5	71	57.0	42.3	121	97.2	72.1	171	137.3	101.9	221	177.5	131.7	271	217.6	161.4
22	17.7	13.1	72	57.8	42.9	22	98.0	72.7	72	138.1	102.5	22	178.3	132,3	72	218.4	162.0
23	18.5	13.7	73	58.6	43.5	23	98.8	73.3	73	138.9	103.1	23	179.1	132.9	73	219.2	162.6
24	19.3	14.3	74	59.4	44.1	24	99.6	73.9	74	139.7	103 7	24	179.9	133.4	74	220.0	163.2
25	20.1	14.9	75	60.2	44.7	25	100.4	74.5	75	140.5	104.3	25	180.7	134.0	75	220.8	163.8
26	20.9	15.5	76	61.0	45.3	126	101.2	75.1	176	141.3	104.9	226	181,5	134.6	276	221.6	164,4
27	21.7	16.1	77	61.8	45.9	27	102.0	75.7	77	142.1	105.4	27	182.3	135.2	77	222,4	165.0
28	22.5	16.7	78	62.6	46.5	28	102.8	76.3	78	142.9	106.0	28	183.1	135.8	78	223.2	165.6
29	23.3	17.3	79	63.4	47.1	29	103.6	76.9	79	143.7	106.6	29	183.9	136.4	79	224.0	166 2
30	24.1	17.9	80	64.2	47.7	30	104.4	77.4	80	144.5	107.2	30	184.7	137.0	80	224.8	166.8
31	24.9	18.5	81	65.0	48.3	131	105.2	78 0	181	145.4	107.8	231	185.5	137.6	281	225.7	167.4
32	25.7	19.1	82	65.8	48.9	32	106.0	78.6	82	146.2	108.4	32	186.3	138.2	82	226.5	168.0
33	26.5	19.7	83	66.7	49.4	33	106.8	79.2	83	147.0	109.0	33	187.1	138.8	83	227.3	168.6
34	27.3	20.3	84	67.5	50.0	34	107.6	79.8	84	147.8	109.6	34	187.9	139.4	84	228.1	169.2
35	28.1	20.9	85	68.3	50.6	35	108.4	80.4	85	148.6	110.2	35	188.7	140.0	85	228.9	169.8
36	29.9	21,4	86	69.1	51.2	136	109.2	81.0	186	149.4	110.8	236	189.5	140.6	286	229.7	170.4
37	30.7	22.0	87	69.9	51.8	37	110.0	81.6	87	150.2	111.4	37	190.3	141.2	87	230.5	171,0
38	30.5	22.6	88	70.7	52.4	38	110.8	82.2	88	151.0	112.0	38	191.1	141.8	88	231.3	171.6
39	31.3	23.2	89	71.5	53.0	39	111.6	82.8	89	151.8	112.6	39	191.9	142.4	89	232.1	172.2
40	32.1	23.8	90	72.3	53.6	40	112.4	83.4	90	152.6	113.2	40	192.7	143.0	90	232.9	172.8
41	32.9	24.4	91	73.1	54.2	141	113.2	84.0	191	153.4	113.8	241	193.5	143.6	291	233.7	173.4
42	33.7	25.0	92	73.9	54.8	42	114.0	84.6	92	154.2	114.4	42	194.3	144.2	92	234.5	174.0
43	34.5	25.6	93	74.7	55.4	43	114.8	85.2	93	155.0	115.0	43	195.1	144.8	93	235.3	174.6
44	35.3	26.2	94	75.5	56.0	44	115.6	85.8	94	155.8	115,6	44	195 9	145.4	94	236.1	175.1
45	36.1	26 8	95	76.3	56.6	45	116.4	86.4	95	156.6	116.2	45	196.7	146.0	95	236.9	175.7
46	36.9	27.4	96	77.1	57.2	146	117.2	87,0	196	157.4	116.8	246	197.5	146.6	296	237.7	176 3
47	37.7	28.0	97	77.9	57.8	47	118.0	87.6	97	158.2	117.4	47	198.4	147.1	97	238.5	176.9
48	38.5	28.6	98	78.7	58.4	48	118.8	88.2	98	159.0	118.0	48	199.2	147.7	98	239.3	177.5
49	39.4	29.2	99	79.5	59.0	49	119 7	88.8	99	159.8	118.6	49	200.0	148.3	99	240.1	178.1
50	40.2	29.8	100	80.3	59.6	150	120.5	89.4	200	160.6	119.1	250	200.8	148.9	300	240.9	178.7
Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	La	Dift	Dep	Lat	Dift	Dep	Lat	Dift	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.8	00 6	51	39.4	32.3	101	78.1	64 0	151	116.7	95 8	201	155.3	127 5	251	194.0	159 2
2	01.5	01.3	52	40.2	33,0	02	78.8	64.7	52	117.5	96,4	02	156.1	128.1	52	194.7	159.8
3	02.3	01.9	53	41.0	33.6	03	79.6	65.3	53	118.2	97.0	03	156,9	128.7	53	195.5	160 4
4	03.1	02.5	54	41.7	34.2	04	80,4	66.0	54	119.0	97.7	04	157.6	129.4	54	196.3	161 1
5	03.9	03.2	55	42,5	34.9	05	81.1	66 6	55	119.8	98.3	05	158 4	130,0	55	197.1	161.7
6	04.6	03.8	56	43.3	35.5	106	81.9	67,2	156	120.6	98.9	206	159.2	130.6	256	197.8	162.3
7	05.4	04.4	57	44.1	36.1	07	82.7	67.9	57	121.3	99.6	07	160.0	131,3	57	198.6	163.0
8	06.2	05.1	58	44.8	36.8	08	83 5	68.5	58	122.1	100.2	08	160.7	131.9	58	199.4	163.6
9	07 0	05,7	59	45.6	37.4	09	84.2	69.1	59	122.9	100.8	09	161.5	132.5	59	200.1	164.2
10	07.7	06 3	60	46 4	38.0	10	85.0	69.8	60	123 6	101,5	10	162.3	133.2	60	200.9	164.9
11	08.5	07 0	61	47.1	38.7	111	85 8	70.4	161	124.4	102.1	211	163.1	133.8	261	201 7	165.5
12	09.3	07.6	62	47.9	39.3	12	86.6	71.0	62	125.2	102.7	12	163.8	134.4	62	202,5	166.1
13	10.1	08.2	63	48.7	40.0	13	87.3	71.7	63	126.0	103.4	13	164.6	135.1	63	203.2	166.8
14	10.8	08.9	64	49.5	40.6	14	88.1	72.3	64	126.7	104.0	14	165.4	135.7	64	204.0	167.4
15	11 6	09.5	65	50,2	41.2	15	88 9	72 9	65	127.5	104.6	15	166.1	136.3	65	204.8	168.0
16	12.4	10.1	66	51.0	41.9	116	89.6	73.6	166	128.3	105 3	216	166,9	137.0	266	205 6	168.7
17	13.1	10,8	67	51.8	42,5	17	90.4	74.2	67	129.1	105 9	17	167.7	137.6	67	206.3	169.3
18	13.9	11.4	68	52.6	43,1	18	91.2	74,8	68	129 8	106.5	18	168.5	138,2	68	207.1	170.0
19	14 7	12.0	69	53.3	43.8	19	92.0	75.5	69	130.6	107.2	19	169.2	138.9	69	207,9	170.6
20	15.5	12.7	70	54.1	44.4	20	92.7	76.1	70	131.4	107.8	20	170.0	139.5	70	208.6	171.2
21	16.2	13.3	71	54 9	45.0	121	93.5	76.7	171	132.1	108.4	221	170.8	140 1	271	209,4	171.9
22	17.0	14.0	72	55.6	45,7	22	94.3	77,4	72	132.9	109.1	22	171.6	140,8	72	210.2	172.5
23	17.8	14.6	73	56.4	46.3	23	95.1	78,0	73	133.7	109.7	23	172.3	141.4	73	211.0	173.1
24	18.5	15,2	74	57.2	46.9	24	95.8	78,6	74	134.5	110.3	24	173.1	142.0	74	211.7	173.8
25	19.3	15.9	75	58.0	47.6	25	96.6	79.3	75	135.2	111.0	25	173 9	142.7	75	212.5	174,4
26	20.1	16 5	76	58.7	48.2	126	97.4	79.9	176	136.0	111.6	226	174.6	143.3	276	213.3	175.0
27	20.9	17.1	77	59,5	48.8	27	98.1	80.5	77	136 8	112,2	27	175.4	144.0	77	214 1	175.7
28	21.6	18.8	78	60.3	49.5	28	98.9	81.2	78	137,6	112.9	28	176.2	144 6	78	214 8	176.3
29	22.4	18.4	79	61.1	50.1	29	99.7	81.8	79	138.3	113.5	29	177.0	145,2	79	215,6	176.9
30	23.2	19.0	80	61 8	50.7	30	100.5	82 4	80	139.1	114.1	30	177.7	145.9	80	216,4	177.6
31	24.0	19,7	81	62.6	51.4	131	101.2	83.1	181	139.9	114.8	231	178.5	146.5	281	217.1	178.2
32	24.7	20.3	82	63.4	52.0	32	102.0	83.7	82	140.6	115.4	32	179.8	147.1	82	217.9	178.8
33	25.5	20.9	83	64.1	52.6	33	102.8	84.3	83	141.4	116.0	33	180.1	147.8	83	218.7	179.5
34	26.3	21 6	84	64,9	53.3	34	103.6	85.0	84	142.2	116.7	34	180.8	148.4	84	219 5	180.1
35	27.1	22.2	85	65.7	53,9	35	104.3	85.6	85	143.0	117.3	35	181.6	149.0	85	220,2	180.7
36	27.8	22.8	86	66,5	54.5	136	105.1	86,2	186	143.7	118.0	236	182.4	149.7	286	221.0	181.4
37	28.6	23.5	87	67.2	55.2	37	105.9	86.9	87	144.5	118.6	37	183.1	150.3	87	221.8	182.0
38	29.4	24.1	88	68.0	55.8	38	106.6	87,5	88	145.3	119.2	38	183.9	150.9	88	212.6	182.6
39	30.1	24.7	89	68,8	56.4	39	107.4	88.1	89	146.1	119.9	39	184,7	151.6	89	223.3	183.3
40	30.9	25.4	90	69.6	57.1	40	108.2	88.8	90	146.8	120.5	40	185.5	152.2	90	224.1	183.9
41	31,7	26.0	91	70.3	57.7	141	109.0	89,4	191	147.6	121.1	241	186.2	152.8	291	214.9	184.5
42	32.5	26,6	92	71.1	58.3	42	109.7	90.0	92	148.4	121.8	42	187,0	153.5	92	225.6	185.2
43	33.2	27.3	93	71.9	59.0	43	110.5	90.7	93	149.1	122.4	43	187.8	154.1	93	226.4	185.8
44	34.0	27 9	94	72.6	59.6	44	111.3	91.3	94	149.9	123.0	44	188.6	154.7	94	227.2	186.4
45	34.8	28.5	95	73.4	60.2	45	112.1	92.0	95	150.7	123.7	45	189.3	155,4	95	228.0	187,1
46	35,6	29.2	96	74.2	60.9	146	112.8	92.6	196	151.5	124.3	246	190.1	156.0	296	228.7	187.7
47	36.3	29.8	97	75.0	61.5	47	113.6	93.2	97	152.2	124.9	47	190.9	156.6	97	229.5	188.3
48	37.1	30.4	98	75,7	62.1	48	114.4	93.9	98	153.0	125.6	48	191.6	157.3	98	230.3	189.0
49	37.9	31.1	99	76.5	62.8	49	115.1	94,5	99	153.8	126.2	49	192.4	157.9	99	231.1	189.6
50	38.6	31.7	100	77.3	63.4	150	115.9	95.1	200	154.6	126.8	250	193.2	158.5	300	231.8	190.2
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 4 ½ Points.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.7	00.7	51	37.8	34.2	101	74.8	67.8	151	111.9	101.4	201	148.9	135.0	251	185.9	168.5
2	01.5	01.3	52	38.5	34.9	02	75.6	68.5	52	112.6	102.1	02	149.6	135.6	52	186.7	169.2
3	02.2	02.0	53	39.3	35.6	03	76.3	69.2	53	113.3	102.7	03	150.4	136.3	53	187.4	169.9
4	03.0	02.7	54	40.0	36.3	04	77.0	69.8	54	114.1	103.4	04	151.1	137.0	54	188.2	170.5
5	03.7	03.4	55	40.7	36.9	05	77.8	70.5	55	114.8	104.1	05	151.9	137.6	55	188.9	171.2
6	04.4	04.0	56	41.5	37.6	106	78.5	71.2	156	115.6	104.7	206	152.6	138.3	256	189.6	171.9
7	05.2	04.7	57	42.2	38.3	07	79.3	71.8	57	116.3	105.4	07	153.3	139.0	57	190.4	172.6
8	05.9	05.4	58	43.0	38.9	08	80.0	72.5	58	117.0	106.1	08	154.1	139.7	58	191.1	173.2
9	06.7	06.0	59	43.7	39.6	09	80.7	73.2	59	117.8	106.8	09	154.8	140.3	59	191.9	173.9
10	07.4	06.7	60	44.4	40.3	10	81.5	73.9	60	118.5	107.4	10	155.6	141.0	60	192.6	174.6
11	08.2	07.4	61	45.2	41.0	111	82.2	74.5	161	119.3	108.1	211	156.3	141.7	261	193.3	175.2
12	08.9	08.1	62	45.9	41.6	12	83.0	75.2	62	120.0	108.8	12	157.0	142.3	62	194.1	175.9
13	09.6	08.7	63	46.7	42.3	13	83.7	75.9	63	120.7	109.4	13	157.8	143.0	63	194.8	176.6
14	10.4	09.4	64	47.4	43.0	14	84.4	76.5	64	121.5	110.1	14	158.5	143.7	64	195.6	177.3
15	11.1	10.1	65	48.2	43.6	15	85.2	77.2	65	122.2	110.8	15	159.3	144.4	65	196.3	177.9
16	11.9	10.7	66	48.9	44.3	116	85.9	77.9	166	123.0	111.5	216	160.0	145.0	266	197.0	178.6
17	12.6	11.4	67	49.6	45.0	17	86.7	78.6	67	123.7	112.1	17	160.7	145.7	67	197.8	179.3
18	13.3	12.1	68	50.4	45.7	18	87.4	79.2	68	124.4	112.8	18	161.5	146.4	68	198.5	179.9
19	14.1	12.8	69	51.1	46.3	19	88.2	79.9	69	125.2	113.5	19	162.2	147.0	69	199.3	180.6
20	14.8	13.4	70	51.9	47.0	20	88.9	80.6	70	125.9	114.1	20	163.0	147.7	70	200.0	181.3
21	15.6	14.1	71	52.6	47.7	121	89.6	81.2	171	126.7	114.8	221	163.7	148.4	271	200.7	182.0
22	16.3	14.8	72	53.3	48.3	22	90.4	81.9	72	127.4	115.5	22	164.4	149.1	72	201.5	182.6
23	17.0	15.4	73	54.1	49.0	23	91.1	82.6	73	128.2	116.2	23	165.2	149.7	73	202.2	183.3
24	17.8	16.1	74	54.8	49.7	24	91.9	83.3	74	128.9	116.8	24	165.9	150.4	74	203.0	184.0
25	18.5	16.8	75	55.6	50.4	25	92.6	83.9	75	129.6	117.5	25	166.7	151.1	75	203.7	184.6
26	19.3	17.5	76	56.3	51.0	126	93.3	84.6	176	130.4	118.2	226	167.4	151.7	276	204.4	185.3
27	20.0	18.1	77	57.0	51.7	27	94.1	85.3	77	131.1	118.8	27	168.2	152.4	77	205.2	186.0
28	20.7	18.8	78	57.8	52.4	28	94.8	85.9	78	131.9	119.5	28	168.9	153.1	78	205.9	186.7
29	21.5	19.5	79	58.5	53.0	29	95.6	86.6	79	132.6	120.2	29	169.6	153.8	79	206.7	187.3
30	22.2	20.1	80	59.3	53.7	30	96.3	87.3	80	133.3	120.9	30	170.4	154.4	80	207.4	188.0
31	23.0	20.8	81	60.0	54.4	131	97.0	88.0	181	134.1	121.5	231	171.1	155.1	281	208.2	188.7
32	23.7	21.5	82	60.7	55.1	32	97.8	88.6	82	134.8	122.2	32	171.9	155.8	82	208.9	189.3
33	24.4	22.2	83	61.5	55.7	33	98.5	89.3	83	135.6	122.9	33	172.6	156.4	83	209.6	190.0
34	25.2	22.8	84	62.2	56.4	34	99.3	90.0	84	136.3	123.5	34	173.3	157.1	84	210.4	190.7
35	25.9	23.5	85	63.0	57.1	35	100.0	90.6	85	137.0	124.2	35	174.1	157.8	85	211.1	191.4
36	26.7	24.2	86	63.7	57.7	136	100.7	91.3	186	137.8	124.9	236	174.8	158.5	286	211.9	192.0
37	27.4	24.8	87	64.4	58.4	37	101.5	92.0	87	138.5	125.6	37	175.6	159.1	87	212.6	192.7
38	28.2	25.5	88	65.2	59.1	38	102.2	92.7	88	139.3	126.2	38	176.3	159.8	88	213.3	193.4
39	28.9	26.2	89	65.9	59.8	39	103.0	93.3	89	140.0	126.9	39	177.0	160.5	89	214.1	194.0
40	29.6	26.9	90	66.7	60.4	40	103.7	94.0	90	140.7	127.6	40	177.8	161.1	90	214.8	194.7
41	30.4	27.5	91	67.4	61.1	141	104.4	94.7	191	141.5	128.2	241	178.5	161.8	291	215.6	195.4
42	31.1	28.2	92	68.2	61.8	42	105.2	95.3	92	142.2	128.9	42	179.3	162.5	92	216.3	196.1
43	31.9	28.9	93	68.9	62.4	43	105.9	96.0	93	143.0	129.6	43	180.0	163.2	93	217.0	196.7
44	32.6	29.5	94	69.6	63.1	44	106.7	96.7	94	143.7	130.3	44	180.7	163.8	94	217.8	197.4
45	33.3	30.2	95	70.4	63.8	45	107.4	97.4	95	144.4	130.9	45	181.5	164.5	95	218.5	198.1
46	34.1	30.9	96	71.1	64.5	146	108.2	98.0	196	145.2	131.6	246	182.2	165.2	296	219.3	198.7
47	34.8	31.6	97	71.9	65.1	47	108.9	98.7	97	145.9	132.3	47	183.0	165.8	97	220.0	199.4
48	35.6	32.2	98	72.6	65.8	48	109.6	99.4	98	146.7	132.9	48	183.7	166.5	98	220.7	200.1
49	36.3	32.9	99	73.3	66.5	49	110.4	100.0	99	147.4	133.6	49	184.4	167.2	99	221.5	200.8
50	37.0	33.6	100	74.1	67.1	150	111.1	100.7	200	148.2	134.3	250	185.2	167.9	300	222.2	201.4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00,7	00,7	51	36.1	36,1	101	71 4	71,4	151	106.8	106.8	201	142.1	142,1	251	177.5	177.5
2	01,4	01,4	52	36.8	36.8	02	72,1	72.1	52	107.5	107.5	02	142.8	142.8	52	178.2	178 2
3	02.1	02.1	53	37.5	37.5	03	72.8	72.8	53	108.2	108.2	03	143 5	143.5	53	178.8	178.9
4	02,8	02.8	54	38,2	38.2	04	73.5	73.5	54	108.9	108.9	04	144.2	144.2	54	179.6	179.6
5	03 5	03.5	55	38.9	38.9	05	74.2	74.2	55	109.6	109.6	05	144.9	144.9	55	180.3	180 3
6	04.2	04 2	56	39 6	39.6	106	74.9	74.9	156	110.3	110,3	206	145.7	145 7	256	181.0	181 0
7	04 9	04 9	57	40.3	40.3	07	75.7	75.7	57	111 0	111,0	07	146.4	146 4	57	181.7	181.7
8	05.7	05 7	58	41.0	41 0	08	76.4	76.4	58	111.7	111 7	08	147.1	147.1	58	182 4	182 4
9	06 4	06.4	59	41 7	41 7	09	77.1	77..	59	112,4	112 4	09	147,8	147.8	59	183.1	183 1
10	07 1	07 1	60	42.4	42 4	10	77.8	77.8	60	113.1	113.1	10	148.5	148.5	60	183.8	183.8
11	07.8	07.8	61	43 1	43.1	111	78.5	78.5	161	113.8	113.8	211	149.2	149,2	261	184.5	184 5
12	08.5	08,5	62	43.8	43.8	12	79.2	79.2	62	114 5	114,5	12	149.9	149 9	62	185.3	185 3
13	09.2	09 2	63	44 5	44.5	13	79.9	79.9	63	115.3	115.3	13	150 6	150,6	63	186.0	185.0
14	09.9	09 9	64	45 3	45.3	14	80.6	80.6	64	116.0	116.0	14	151.3	151.3	64	186.7	186 7
15	10.6	10.6	65	46 0	46.0	15	81.3	81.3	65	116.7	116 7	15	152.0	152.0	65	187.4	187 4
16	11.3	11.3	66	46,7	46.7	116	82.0	82.0	166	117 4	117.4	216	152.7	152.7	266	188.1	188.1
17	12 0	12.0	67	47.4	47.4	17	82.7	82.7	67	118.1	118,1	17	153.4	153.4	67	188.8	188.8
18	12 7	12.7	68	48 1	48.1	18	83.4	83.4	68	118.8	118.8	18	154.1	154,1	68	189 5	199.5
19	13.4	13 4	69	48 8	48,8	19	84.1	84.1	69	119 5	119.5	19	154.8	154.8	69	190.2	190.2
20	14 1	14 1	70	49.5	49.5	20	84 8	84.8	70	120 2	120.2	20	155.6	155.6	70	190.9	190 9
21	14 8	14.8	71	50.2	50 2	121	85.6	85.6	171	120.9	120,9	221	156.3	156.3	271	191.6	191.6
22	15.6	15 6	72	50 9	50.9	22	86.3	86.3	72	121.6	121.6	22	157 0	157.0	72	192.3	192.3
23	16.3	16.3	73	51.6	51,6	23	87 0	87.0	73	122.3	122.3	23	157.7	157.7	73	193.0	193.0
24	17 0	17.0	74	52 3	52.3	24	87.7	87.7	74	123.0	123.0	24	158.4	158.4	74	193.7	193.7
25	17.7	17.7	75	53.0	53.0	25	88.4	88.4	75	123.7	123.7	25	159.1	159 1	75	194.4	194.4
26	18.4	18.4	76	53.7	53.7	126	89 1	89 1	176	124.4	124,4	226	159.8	159.8	276	195 2	195.2
27	19.1	19.1	77	54.4	54.4	27	89.8	89.8	77	125,2	125.2	27	160.5	160.5	77	195.9	195.9
28	19.8	19.8	78	55.2	55.2	28	90.5	90.5	78	125.9	125 9	28	161.2	161.2	78	196.6	196.6
29	20,5	20.5	79	55.9	55.9	29	91.2	91.2	79	126.6	126,6	29	161.9	161,9	79	197.3	197.3
30	21.2	21.2	80	56.6	56.6	30	91.9	91.9	80	127.3	127.3	30	162.6	162.6	80	198.0	198.0
31	21 9	21.9	81	57.3	57.3	131	92.6	93.6	181	128.0	128 0	231	163.3	163.3	281	198.7	198.7
32	22.6	21.6	82	58.0	58.0	32	93.3	93.3	82	128.7	128.7	32	164.0	164,0	82	199.4	199.4
33	23.3	23.3	83	58.7	58.7	33	94.0	94 0	83	129 4	129.4	33	164.7	164.7	83	200.1	200.1
34	24,0	24.0	84	59 4	59.4	34	94.7	94.7	84	130.1	130.1	34	165.5	165.5	84	200.8	200.8
35	24.7	24.7	85	60.1	60.1	35	95.5	95,5	85	130.8	130.8	35	166.2	166.2	85	201.5	201.5
36	25.5	25.5	86	60,8	60.8	136	96.2	96,2	186	131.5	131.5	236	166.9	166.9	286	201.2	202.2
37	26.2	26.2	87	61.5	61.5	37	96.9	96.9	87	132.1	132.2	37	167.6	167.6	87	202.9	202.9
38	26.9	26.9	88	62.2	62.2	38	97.6	97.6	88	132,9	132.9	38	168.3	168.3	88	203.6	203.6
39	27.6	27.6	89	62.9	62.9	39	98.3	98.3	89	133,6	133.6	39	169.0	169.0	89	204.3	204.3
40	28.3	28.3	90	63.6	63.6	40	99.0	99.0	90	134.3	134.3	40	169.7	169.7	90	205.1	205.1
41	29 0	29.0	91	64.3	64.3	141	99.7	99.7	191	135,1	135.1	241	170.4	170,4	291	205.8	205.8
42	29.7	29.7	92	65.1	65.1	42	100.4	100.4	92	135.8	135.8	42	171.1	171.1	92	206 5	206.5
43	30.4	30.4	93	65.8	65.8	43	101.1	101.1	93	136.5	136.5	43	171.8	171.8	93	207.2	207.2
44	31.1	31.1	94	66.5	66.5	44	101.8	101.8	94	137.2	137.2	44	172.5	172.5	94	207.9	207.9
45	31.8	31.8	95	67.2	67.2	45	102.5	102.5	95	137.9	137.9	45	173,2	173.2	95	208.6	208.6
46	32.5	32.5	96	67.9	67.9	146	103.2	103.2	196	138.6	138.6	246	173.9	173.9	296	209.3	209.3
47	33.2	33.2	97	68.6	68,6	47	103.9	103,9	97	139.3	139.3	47	174.6	174,6	97	210.0	210,0
48	33.9	33.9	98	69.3	69.3	48	104,6	104.6	98	140.0	140.0	48	175.4	175.4	98	210.7	210.7
49	34.6	34.6	99	70.0	70,0	49	105.4	105,4	99	140.7	140.7	49	176.1	176.1	99	211.4	211.4
50	35 4	35.4	100	70.7	70.7	150	106.1	106.1	200	141,4	141,4	250	176.8	176.8	300	212.1	212.1
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

for 4 Points.

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.7	00.7	51	37.8	34.2	101	74.8	67.8	151	111.9	101.4	201	148.9	135.0	251	185.9	168.5
2	01.5	01.3	52	38.5	34.9	02	75.6	68.5	52	112.6	102.1	02	149.6	135.6	52	186.7	169.2
3	02.2	02.0	53	39.3	35.6	03	76.3	69.2	53	113.3	102.7	03	150.4	136.3	53	187.4	169.9
4	03.0	02.7	54	40.0	36.3	04	77.0	69.8	54	114.1	103.4	04	151.1	137.0	54	188.2	170.5
5	03.7	03.4	55	40.7	36.9	05	77.8	70.5	55	114.8	104.1	05	151.9	137.6	55	188.9	171.2
6	04.4	04.0	56	41.5	37.6	106	78.5	71.2	156	115.6	104.7	206	152.6	138.3	256	189.6	171.9
7	05.2	04.7	57	42.2	38.3	07	79.3	71.8	57	116.3	105.4	07	153.3	139.0	57	190.4	172.6
8	05.9	05.4	58	43.0	38.9	08	80.0	72.5	58	117.0	106.1	08	154.1	139.7	58	191.1	173.2
9	06.7	06.0	59	43.7	39.6	09	80.7	73.2	59	117.8	106.8	09	154.8	140.3	59	191.9	173.9
10	07.4	06.7	60	44.4	40.3	10	81.5	73.9	60	118.5	107.4	10	155.6	141.0	60	192.6	174.6
11	08.2	07.4	61	45.2	41.0	111	82.2	74.5	161	119.3	108.1	211	156.3	141.7	261	193.3	175.2
12	08.9	08.1	62	45.9	41.6	12	83.0	75.2	62	120.0	108.8	12	157.0	142.3	62	194.1	175.9
13	09.6	08.7	63	46.7	42.3	13	83.7	75.9	63	120.7	109.4	13	157.8	143.0	63	194.8	176.6
14	10.4	09.4	64	47.4	43.0	14	84.4	76.5	64	121.5	110.1	14	158.5	143.7	64	195.6	177.3
15	11.1	10.1	65	48.2	43.6	15	85.2	77.2	65	122.2	110.8	15	159.3	144.4	65	196.3	177.9
16	11.9	10.7	66	48.9	44.3	116	85.9	77.9	166	123.0	111.5	216	160.0	145.0	266	197.0	178.6
17	12.6	11.4	67	49.6	45.0	17	86.7	78.6	67	123.7	112.1	17	160.7	145.7	67	197.8	179.3
18	13.3	12.1	68	50.4	45.7	18	87.4	79.2	68	124.4	112.8	18	161.5	146.4	68	198.5	179.9
19	14.1	12.8	69	51.1	46.3	19	88.2	79.9	69	125.2	113.5	19	162.2	147.0	69	199.3	180.6
20	14.8	13.4	70	51.9	47.0	20	88.9	80.6	70	125.9	114.1	20	163.0	147.7	70	200.0	181.3
21	15.6	14.1	71	52.6	47.7	121	89.6	81.2	171	126.7	114.8	221	163.7	148.4	271	200.7	182.0
22	16.3	14.8	72	53.3	48.3	22	90.4	81.9	72	127.4	115.5	22	164.4	149.1	72	201.5	182.6
23	17.0	15.4	73	54.1	49.0	23	91.1	82.6	73	128.2	116.2	23	165.2	149.7	73	20,2	183.3
24	17.8	16.1	74	54.8	49.7	24	91.9	83.3	74	128.9	116.8	24	165.9	150.4	74	203.0	184.0
25	18.5	16.8	75	55.6	50.4	25	92.6	83.9	75	129.6	117.5	25	166.7	151.1	75	203.7	184.6
26	19.3	17.5	76	56.3	51.0	126	93.3	84.6	176	130.4	118.2	226	167.4	151.7	276	204.4	185.3
27	20.0	18.1	77	57.0	51.7	27	94.1	85.3	77	131.1	118.8	27	168.2	152.4	77	205.2	186.0
28	20.7	18.8	78	57.8	52.4	28	94.8	85.9	78	131.9	119.5	28	168.9	153.1	78	205.9	186.7
29	21.5	19.5	79	58.5	53.0	29	95.6	86.6	79	132.6	120.2	29	169.6	153.8	79	206.7	187.3
30	22.2	20.1	80	59.3	53.7	30	96.3	87.3	80	133.3	120.9	30	170.4	154.4	80	207.4	188.0
31	23.0	20.8	81	60.0	54.4	131	97.0	88.0	181	134.1	121.5	231	171.1	155.1	281	208.2	188.7
32	23.7	21.5	82	60.7	55.1	32	97.8	88.6	82	134.8	122.2	32	171.9	155.8	82	208.9	189.3
33	24.4	22.2	83	61.5	55.7	33	98.5	89.3	83	135.6	122.9	33	172.6	156.4	83	209.6	190.0
34	25.2	22.8	84	62.2	56.4	34	99.3	90.0	84	136.3	123.5	34	173.3	157.1	84	210.4	190.7
35	25.9	23.5	85	63.0	57.1	35	100.0	90.6	85	137.0	124.2	35	174.1	157.8	85	211.1	191.4
36	26.7	24.2	86	63.7	57.7	136	100.7	91.3	186	137.8	124.9	236	174.8	158.5	286	211.9	192.0
37	27.4	24.8	87	64.4	58.4	37	101.5	92.0	87	138.5	125.6	37	175.6	159.1	87	212.6	192.7
38	28.2	25.5	88	65.2	59.1	38	102.2	92.7	88	139.3	126.2	38	176.3	159.8	88	213.3	193.4
39	28.9	26.2	89	65.9	59.8	39	103.0	93.3	89	140.0	126.9	39	177.0	160.5	89	214.1	194.0
40	29.6	26.9	90	66.7	60.4	40	103.7	94.0	90	140.7	127.6	40	177.8	161.1	90	214.8	194.7
41	30.4	27.5	91	67.4	61.1	141	104.4	94.7	191	141.5	128.2	241	178.5	161.8	291	215.6	195.4
42	31.1	28.2	92	68.2	61.8	42	105.2	95.3	92	142.2	128.9	42	179.3	162.5	92	216.3	196.1
43	31.9	28.9	93	68.9	62.4	43	105.9	96.0	93	143.0	129.6	43	180.0	163.2	93	217.0	196.7
44	32.6	29.5	94	69.6	63.1	44	106.7	96.7	94	143.7	130.3	44	180.7	163.8	94	217.8	197.4
45	33.3	30.2	95	70.4	63.8	45	107.4	97.4	95	144.4	130.9	45	181.5	164.5	95	218.5	198.1
46	34.1	30.9	96	71.1	64.5	146	108.2	98.0	196	145.2	131.6	246	182.2	165.2	296	219.3	198.7
47	34.8	31.6	97	71.9	65.1	47	108.9	98.7	97	145.9	132.3	47	183.0	165.8	97	220.0	199.4
48	35.6	32.2	98	72.6	65.8	48	109.6	99.4	98	146.7	132.9	48	183.7	166.5	98	220.7	200.1
49	36.3	32.9	99	73.3	66.5	49	110.4	100.0	99	147.4	133.6	49	184.4	167.2	99	221.5	200.8
50	37.0	33.6	100	74.1	67.1	150	111.1	100.7	200	148.2	134.3	250	185.2	167.9	300	222.2	201.4
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep	Dist	Lat	Dep
1	00.7	00.7	51	36.1	36.1	101	71.4	71.4	151	106.8	106.8	201	142.1	142.1	251	177.5	177.5
2	01.4	01.4	52	36.8	36.8	102	72.1	72.1	152	107.5	107.5	202	142.8	142.8	252	178.2	178.2
3	02.1	02.1	53	37.5	37.5	103	72.8	72.8	153	108.2	108.2	203	143.5	143.5	253	178.9	178.9
4	02.8	02.8	54	38.2	38.2	104	73.5	73.5	154	108.9	108.9	204	144.2	144.2	254	179.6	179.6
5	03.5	03.5	55	38.9	38.9	105	74.2	74.2	155	109.6	109.6	205	144.9	144.9	255	180.3	180.3
6	04.2	04.2	56	39.6	39.6	106	74.9	74.9	156	110.3	110.3	206	145.7	145.7	256	181.0	181.0
7	04.9	04.9	57	40.3	40.3	107	75.7	75.7	157	111.0	111.0	207	146.4	146.4	257	181.7	181.7
8	05.7	05.7	58	41.0	41.0	108	76.4	76.4	158	111.7	111.7	208	147.1	147.1	258	182.4	182.4
9	06.4	06.4	59	41.7	41.7	109	77.1	77.1	159	112.4	112.4	209	147.8	147.8	259	183.1	183.1
10	07.1	07.1	60	42.4	42.4	110	77.8	77.8	160	113.1	113.1	210	148.5	148.5	260	183.8	183.8
11	07.8	07.8	61	43.1	43.1	111	78.5	78.5	161	113.8	113.8	211	149.2	149.2	261	184.5	184.5
12	08.5	08.5	62	43.8	43.8	112	79.2	79.2	162	114.5	114.5	212	149.9	149.9	262	185.3	185.3
13	09.2	09.2	63	44.5	44.5	113	79.9	79.9	163	115.3	115.3	213	150.6	150.6	263	186.0	186.0
14	09.9	09.9	64	45.3	45.3	114	80.6	80.6	164	116.0	116.0	214	151.3	151.3	264	186.7	186.7
15	10.6	10.6	65	46.0	46.0	115	81.3	81.3	165	116.7	116.7	215	152.0	152.0	265	187.4	187.4
16	11.3	11.3	66	46.7	46.7	116	82.0	82.0	166	117.4	117.4	216	152.7	152.7	266	188.1	188.1
17	12.0	12.0	67	47.4	47.4	117	82.7	82.7	167	118.1	118.1	217	153.4	153.4	267	188.8	188.8
18	12.7	12.7	68	48.1	48.1	118	83.4	83.4	168	118.8	118.8	218	154.1	154.1	268	189.5	189.5
19	13.4	13.4	69	48.8	48.8	119	84.1	84.1	169	119.5	119.5	219	154.8	154.8	269	190.2	190.2
20	14.1	14.1	70	49.5	49.5	120	84.8	84.8	170	120.2	120.2	220	155.6	155.6	270	190.9	190.9
21	14.8	14.8	71	50.2	50.2	121	85.6	85.6	171	120.9	120.9	221	156.3	156.3	271	191.6	191.6
22	15.6	15.6	72	50.9	50.9	122	86.3	86.3	172	121.6	121.6	222	157.0	157.0	272	192.3	192.3
23	16.3	16.3	73	51.6	51.6	123	87.0	87.0	173	122.3	122.3	223	157.7	157.7	273	193.0	193.0
24	17.0	17.0	74	52.3	52.3	124	87.7	87.7	174	123.0	123.0	224	158.4	158.4	274	193.7	193.7
25	17.7	17.7	75	53.0	53.0	125	88.4	88.4	175	123.7	123.7	225	159.1	159.1	275	194.4	194.4
26	18.4	18.4	76	53.7	53.7	126	89.1	89.1	176	124.4	124.4	226	159.8	159.8	276	195.2	195.2
27	19.1	19.1	77	54.4	54.4	127	89.8	89.8	177	125.2	125.2	227	160.5	160.5	277	195.9	195.9
28	19.8	19.8	78	55.2	55.2	128	90.5	90.5	178	125.9	125.9	228	161.2	161.2	278	196.6	196.6
29	20.5	20.5	79	55.9	55.9	129	91.2	91.2	179	126.6	126.6	229	161.9	161.9	279	197.3	197.3
30	21.2	21.2	80	56.6	56.6	130	91.9	91.9	180	127.3	127.3	230	162.6	162.6	280	198.0	198.0
31	21.9	21.9	81	57.3	57.3	131	92.6	92.6	181	128.0	128.0	231	163.3	163.3	281	198.7	198.7
32	22.6	22.6	82	58.0	58.0	132	93.3	93.3	182	128.7	128.7	232	164.0	164.0	282	199.4	199.4
33	23.3	23.3	83	58.7	58.7	133	94.0	94.0	183	129.4	129.4	233	164.7	164.7	283	200.1	200.1
34	24.0	24.0	84	59.4	59.4	134	94.7	94.7	184	130.1	130.1	234	165.5	165.5	284	200.8	200.8
35	24.7	24.7	85	60.1	60.1	135	95.5	95.5	185	130.8	130.8	235	166.2	166.2	285	201.5	201.5
36	25.5	25.5	86	60.8	60.8	136	96.2	96.2	186	131.5	131.5	236	166.9	166.9	286	201.2	202.2
37	26.2	26.2	87	61.5	61.5	137	96.9	96.9	187	132.1	132.2	237	167.6	167.6	287	202.9	202.9
38	26.9	26.9	88	62.2	62.2	138	97.6	97.6	188	132.9	132.9	238	168.3	168.3	288	203.6	203.6
39	27.6	27.6	89	62.9	62.9	139	98.3	98.3	189	133.6	133.6	239	169.0	169.0	289	204.3	204.3
40	28.3	28.3	90	63.6	63.6	140	99.0	99.0	190	134.3	134.3	240	169.7	169.7	290	205.1	205.1
41	29.0	29.0	91	64.3	64.3	141	99.7	99.7	191	135.1	135.1	241	170.4	170.4	291	205.8	205.8
42	29.7	29.7	92	65.1	65.1	142	100.4	100.4	192	135.8	135.8	242	171.1	171.1	292	206.5	206.5
43	30.4	30.4	93	65.8	65.8	143	101.1	101.1	193	136.5	136.5	243	171.8	171.8	293	207.2	207.2
44	31.1	31.1	94	66.5	66.5	144	101.8	101.8	194	137.2	137.2	244	172.5	172.5	294	207.9	207.9
45	31.8	31.8	95	67.2	67.2	145	102.5	102.5	195	137.9	137.9	245	173.2	173.2	295	208.6	208.6
46	32.5	32.5	96	67.9	67.9	146	103.2	103.2	196	138.6	138.6	246	173.9	173.9	296	209.3	209.3
47	33.2	33.2	97	68.6	68.6	147	103.9	103.9	197	139.3	139.3	247	174.6	174.6	297	210.0	210.0
48	33.9	33.9	98	69.3	69.3	148	104.6	104.6	198	140.0	140.0	248	175.4	175.4	298	210.7	210.7
49	34.6	34.6	99	70.0	70.0	149	105.4	105.4	199	140.7	140.7	249	176.1	176.1	299	211.4	211.4
50	35.4	35.4	100	70.7	70.7	150	106.1	106.1	200	141.4	141.4	250	176.8	176.8	300	212.1	212.1
Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat	Dist	Dep	Lat

A TABLE of Numbers for the readier finding the Time of High-Water on any Day.

Year 1766.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	29	31	30	31	32	33	34	35	37	37	39	39
2	30	32	31	32	33	34	35	36	38	38	40	40
3	31	33	32	33	34	35	36	37	39	39	11	11
4	32	34	33	34	35	36	37	38	40	40	12	12
5	33	35	34	35	36	37	38	39	11	11	13	13
6	34	36	35	36	37	38	39	40	12	12	14	14
7	35	37	36	37	38	39	40	11	13	13	15	15
8	36	38	37	38	39	40	11	12	14	14	16	16
9	37	39	38	39	40	11	12	13	15	15	17	17
10	38	40	39	40	11	12	13	14	16	16	18	18
11	39	11	40	11	12	13	14	15	17	17	19	19
12	40	12	11	12	13	14	15	16	18	18	20	20
13	11	13	12	13	14	15	16	17	19	19	21	21
14	12	14	13	14	15	16	17	18	20	20	22	22
15	13	15	14	15	16	17	18	19	21	21	23	23
16	14	16	15	16	17	18	19	20	22	22	24	24
17	15	17	16	17	18	19	20	21	23	23	25	25
18	16	18	17	18	19	20	21	22	24	24	26	26
19	17	19	18	19	20	21	22	23	25	25	27	27
20	18	20	19	20	21	22	23	24	26	26	28	28
21	19	21	20	21	22	23	24	25	27	27	29	29
22	20	22	21	22	23	24	25	26	28	28	30	30
23	21	23	22	23	24	25	26	27	29	29	31	31
24	22	24	23	24	25	26	27	28	30	30	32	32
25	23	25	24	25	26	27	28	29	31	31	33	33
26	24	26	25	26	27	28	29	30	32	32	34	34
27	25	27	26	27	28	29	30	31	33	33	35	35
28	26	28	27	28	29	30	31	32	34	34	36	36
29	27		28	29	30	31	32	33	35	35	37	37
30	28		29	30	31	32	33	34	36	36	38	38
31	29		30		32		34	35		37		39

Year 1767.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	11	13	12	13	14	15	16	17	19	19	21	21
2	12	14	13	14	15	16	17	18	20	20	22	22
3	13	15	14	15	16	17	18	19	21	21	23	23
4	14	16	15	16	17	18	19	20	22	22	24	24
5	15	17	16	17	18	19	20	21	23	23	25	25
6	16	18	17	18	19	20	21	22	24	24	26	26
7	17	19	18	19	20	21	22	23	25	25	27	27
8	18	20	19	20	21	22	23	24	26	26	28	28
9	19	21	20	21	22	23	24	25	27	27	29	29
10	20	22	21	22	23	24	25	26	28	28	30	30
11	21	23	22	23	24	25	26	27	29	29	31	31
12	22	24	23	24	25	26	27	28	30	30	32	32
13	23	25	24	25	26	27	28	29	31	31	33	33
14	24	26	25	26	27	28	29	30	32	32	34	34
15	25	27	26	27	28	29	30	31	33	33	35	35
16	26	28	27	28	29	30	31	32	34	34	36	36
17	27	29	28	29	30	31	32	33	35	35	37	37
18	28	30	29	30	31	32	33	34	36	36	38	38
19	29	31	30	31	32	33	34	35	37	37	39	39
20	30	32	31	32	33	34	35	36	38	38	40	40
21	31	33	32	33	34	35	36	37	39	39	11	11
22	32	34	33	34	35	36	37	38	40	40	12	12
23	33	35	34	35	36	37	38	39	11	11	13	13
24	34	36	35	36	37	38	39	40	12	12	14	14
25	35	37	36	37	38	39	40	11	13	13	15	15
26	36	38	37	38	39	40	11	12	14	14	16	16
27	37	39	38	39	40	11	12	13	15	15	17	17
28	38	40	39	40	11	12	13	14	16	16	18	18
29	39		40	11	12	13	14	15	17	17	19	19
30	40		11	12	13	14	15	16	18	18	20	20
31	11		12		14		16	17		19		21

A TABLE of Numbers for the readier finding the Time of High-Water on any Day.

Year 1768.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	22	24	23	24	25	26	27	28	30	30	32	32
2	23	25	24	25	26	27	28	29	31	31	33	33
3	24	26	25	26	27	28	29	30	32	32	34	34
4	25	27	26	27	28	29	30	31	33	33	35	35
5	26	28	27	28	29	30	31	32	34	34	36	36
6	27	29	28	29	30	31	32	33	35	35	37	37
7	28	30	29	30	31	32	33	34	36	36	38	38
8	29	31	30	31	32	33	34	35	37	37	39	39
9	30	32	31	32	33	34	35	36	38	38	40	40
10	31	33	32	33	34	35	36	37	39	39	11	11
11	32	34	33	34	35	36	37	38	40	40	12	12
12	33	35	34	35	36	37	38	39	11	11	13	13
13	34	36	35	36	37	38	39	40	12	12	14	14
14	35	37	36	37	38	39	40	11	13	13	15	15
15	36	38	37	38	39	40	11	12	14	14	16	16
16	37	39	38	39	40	11	12	13	15	15	17	17
17	38	40	39	40	11	12	13	14	16	16	18	18
18	39	11	40	11	12	13	14	15	17	17	19	19
19	40	12	11	12	13	14	15	16	18	18	20	20
20	11	13	12	13	14	15	16	17	19	19	21	21
21	12	14	13	14	15	16	17	18	20	20	22	22
22	13	15	14	15	16	17	18	19	21	21	23	23
23	14	16	15	16	17	18	19	20	22	22	24	24
24	15	17	16	17	18	19	20	21	23	23	25	25
25	16	18	17	18	19	20	21	22	24	24	26	26
26	17	19	18	19	20	21	22	23	25	25	27	27
27	18	20	19	20	21	22	23	24	26	26	28	28
28	19	21	20	21	22	23	24	25	27	27	29	29
29	20	22	21	22	23	24	25	26	28	28	30	30
30	21		22	23	24	25	26	27	29	29	31	31
31	22		23		25		27	28		30		32

Year 1769.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	33	35	34	35	36	37	38	39	11	11	13	13
2	34	36	35	36	37	38	39	40	12	12	14	14
3	35	37	36	37	38	39	40	11	13	13	15	15
4	36	38	37	38	39	40	11	12	14	14	16	16
5	37	39	38	39	40	11	12	13	15	15	17	17
6	38	40	39	40	11	12	13	14	16	16	18	18
7	39	11	40	11	12	13	14	15	17	17	19	19
8	40	12	11	12	13	14	15	16	18	18	20	20
9	11	13	12	13	14	15	16	17	19	19	21	21
10	12	14	13	14	15	16	17	18	20	20	22	22
11	13	15	14	15	16	17	18	19	21	21	23	23
12	14	16	15	16	17	18	19	20	22	22	24	24
13	15	17	16	17	18	19	20	21	23	23	25	25
14	16	18	17	18	19	20	21	22	24	24	26	26
15	17	19	18	19	20	21	22	23	25	25	27	27
16	18	20	19	20	21	22	23	24	26	26	28	28
17	19	21	20	21	22	23	24	25	27	27	29	29
18	20	22	21	22	23	24	25	26	28	28	30	30
19	21	23	22	23	24	25	26	27	29	29	31	31
20	22	24	23	24	25	26	27	28	30	30	32	32
21	23	25	24	25	26	27	28	29	31	31	33	33
22	24	26	25	26	27	28	29	30	32	32	34	34
23	25	27	26	27	28	29	30	31	33	33	35	35
24	26	28	27	28	29	30	31	32	34	34	36	36
25	27	29	28	29	30	31	32	33	35	35	37	37
26	28	30	29	30	31	32	33	34	36	36	38	38
27	29	31	30	31	32	33	34	35	37	37	39	39
28	30	32	31	32	33	34	35	36	38	38	40	40
29	31		32	33	34	35	36	37	39	39	11	11
30	32		33	34	35	36	37	38	40	40	12	12
31	33		34		36		38	39		11		13

A TABLE of Numbers for the readier finding the Time of High-Water on any Day.

Year 1770.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	14	16	15	16	17	18	19	20	22	22	24	24
2	15	17	16	17	18	19	20	21	23	23	25	25
3	16	18	17	18	19	20	21	22	24	24	26	26
4	17	19	18	19	20	21	22	23	25	25	27	27
5	18	20	19	20	21	22	23	24	26	26	28	28
6	19	21	20	21	22	23	24	25	27	27	29	29
7	20	22	21	22	23	24	25	26	28	28	30	30
8	21	23	22	23	24	25	26	27	29	29	31	31
9	22	24	23	24	25	26	27	28	30	30	32	32
10	23	25	24	25	26	27	28	29	31	31	33	33
11	24	26	25	26	27	28	29	30	32	32	34	34
12	25	27	26	27	28	29	30	31	33	33	35	35
13	26	28	27	28	29	30	31	32	34	34	36	36
14	27	29	28	29	30	31	32	33	35	35	37	37
15	28	30	29	30	31	32	33	34	36	36	38	38
16	29	31	30	31	32	33	34	35	37	37	39	39
17	30	32	31	32	33	34	35	36	38	38	40	40
18	31	33	32	33	34	35	36	37	39	39	11	11
19	32	34	33	34	35	36	37	38	40	40	12	12
20	33	35	34	35	36	37	38	39	11	11	13	13
21	34	36	35	36	37	38	39	40	12	12	14	14
22	35	37	36	37	38	39	40	11	13	13	15	15
23	36	38	37	38	39	40	11	12	14	14	16	16
24	37	39	38	39	40	11	12	13	15	15	17	17
25	38	40	39	40	11	12	13	14	16	16	18	18
26	39	11	40	11	12	13	14	15	17	17	19	19
27	40	12	11	12	13	14	15	16	18	18	20	20
28	11	13	12	13	14	15	16	17	19	19	21	21
29	12		13	14	15	16	17	18	20	20	22	22
30	13		14	15	16	17	18	19	21	21	23	23
31	14		15		17		19	20		22		24

Year 1771.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	25	26	25	25	27	29	29	31	33	33	35	35
2	26	27	26	26	28	30	30	32	34	34	36	36
3	27	28	27	27	29	31	31	33	35	35	37	37
4	28	29	28	28	30	32	32	34	36	36	38	38
5	29	30	29	29	31	33	33	35	37	37	39	39
6	30	31	30	30	32	34	34	36	38	38	40	40
7	31	32	31	31	33	35	35	37	39	39	11	11
8	32	33	32	32	34	36	36	38	40	40	12	12
9	33	34	33	33	35	37	37	39	11	11	13	13
10	34	35	34	34	36	38	38	40	12	12	14	14
11	35	36	35	35	37	39	39	11	13	13	15	15
12	36	37	36	36	38	40	40	12	14	14	16	16
13	37	38	37	37	39	11	11	13	15	15	17	17
14	38	39	38	38	40	12	12	14	16	16	18	18
15	39	40	39	39	11	13	13	15	17	17	19	19
16	40	11	40	40	12	14	14	16	18	18	20	20
17	11	12	11	11	13	15	15	17	19	19	21	21
18	12	13	12	12	14	16	16	18	20	20	22	22
19	13	14	13	13	15	17	17	19	21	21	23	23
20	14	15	14	14	16	18	18	20	22	22	24	24
21	15	16	15	15	17	19	19	21	23	23	25	25
22	16	17	16	16	18	20	20	22	24	24	26	26
23	17	18	17	17	19	21	21	23	25	25	27	27
24	18	19	18	18	20	22	22	24	26	26	28	28
25	19	20	19	19	21	23	23	25	27	27	29	29
26	20	21	20	20	22	24	24	26	28	28	30	30
27	21	22	21	21	23	25	25	27	29	29	31	31
28	22	23	22	22	24	26	26	28	30	30	32	32
29	23		23	23	25	27	27	29	31	31	33	33
30	24		24	24	26	28	28	30	32	32	34	34
31	25		25		27		29	31		34		35

A TABLE of Numbers for the readier finding the Time of High-Water on any Day.

Year 1772.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	36	38	37	38	38	40	40	11	13	15	16	17
2	37	39	38	39	39	11	11	12	14	16	17	18
3	38	40	39	40	40	12	12	13	15	17	18	19
4	39	11	40	11	11	13	13	14	16	18	19	20
5	40	12	11	12	12	14	14	15	17	19	20	21
6	11	13	12	13	13	15	15	16	18	20	21	22
7	12	14	13	14	14	16	16	17	19	21	22	23
8	13	15	14	15	15	17	17	18	20	22	23	24
9	14	16	15	16	16	18	18	19	21	23	24	25
10	15	17	16	17	17	19	19	20	22	24	25	26
11	16	18	17	18	18	20	20	21	23	25	26	27
12	17	19	18	19	19	21	21	22	24	26	27	28
13	18	20	19	20	20	22	22	23	25	27	28	29
14	19	21	20	21	21	23	23	24	26	28	29	30
15	20	22	21	22	22	24	24	25	27	29	30	31
16	21	23	22	23	23	25	25	26	28	30	31	32
17	22	24	23	24	24	26	26	27	29	31	32	33
18	23	25	24	25	25	27	27	28	30	32	33	34
19	24	26	25	26	26	28	28	29	31	33	34	35
20	25	27	26	27	27	2	29	30	32	34	35	36
21	26	28	27	28	28	30	30	31	33	35	36	37
22	27	29	28	29	29	31	31	32	34	36	37	38
23	28	30	29	30	30	32	32	33	35	37	38	39
24	29	31	30	31	31	33	33	34	36	38	39	40
25	30	32	31	32	32	34	34	35	37	39	40	11
26	31	33	32	33	33	35	35	36	38	40	11	12
27	32	34	33	34	34	36	36	37	39	11	12	13
28	33	35	34	35	35	37	37	38	40	12	13	14
29	34	36	35	36	36	38	38	39	12	13	14	15
30	35		36	37	37	39	39	40	13	14	15	16
31	36		37		38		40			15		17

Year 1773.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	18	20	18	19	20	21	21	23	24	25	27	27
2	19	21	19	20	21	22	22	24	25	26	28	28
3	20	22	20	21	22	23	23	25	26	27	29	29
4	21	23	21	22	23	24	24	26	27	28	30	30
5	22	24	22	23	24	25	25	27	28	29	31	31
6	23	25	23	24	25	26	26	28	29	30	32	32
7	24	26	24	25	26	27	27	29	30	31	33	33
8	25	27	25	26	27	28	28	30	31	32	34	34
9	26	28	26	27	28	29	29	31	32	33	35	35
10	27	29	27	28	29	30	30	32	33	34	36	36
11	28	30	28	29	30	31	31	33	34	35	37	37
12	29	31	29	30	31	32	32	34	35	36	38	38
13	30	32	30	31	32	33	33	35	36	37	39	39
14	31	33	31	32	33	34	34	36	37	38	40	40
15	32	34	32	33	34	35	35	37	38	39	11	11
16	33	35	33	34	35	36	36	38	39	40	12	12
17	34	36	34	35	36	37	37	39	40	11	13	13
18	35	37	35	36	37	38	38	40	11	12	14	14
19	36	38	36	37	38	39	39	11	12	13	15	15
20	37	39	37	38	39	40	40	12	13	14	16	16
21	38	40	38	39	40	11	11	13	14	15	17	17
22	39	11	39	40	11	12	12	14	15	16	18	18
23	40	12	40	11	12	13	13	15	16	17	19	19
24	11	13	11	12	13	14	14	16	17	18	20	20
25	12	14	12	13	14	15	15	17	18	19	21	21
26	13	15	13	14	15	16	16	18	19	20	22	22
27	14	16	14	15	16	17	17	19	20	21	23	23
28	15	17	15	16	17	18	18	20	21	22	24	24
29	16		16	17	18	19	19	21	22	23	25	25
30	17		17	18	19	20	20	22	23	24	26	26
31	18		18		20		22	23		25		28

A TABLE of Numbers, &c.

Year 1774.

Month Days	January	February	March	April	May	June	July	August	September	October	November	December
1	29	30	29	30	30	32	32	34	35	35	37	38
2	30	31	30	31	31	33	33	35	36	36	38	39
3	31	32	31	32	32	34	34	36	37	37	39	40
4	32	33	32	33	33	35	35	37	38	38	40	11
5	33	34	33	34	34	36	36	38	39	39	11	12
6	34	35	34	35	35	37	37	39	40	40	12	13
7	35	36	35	36	36	38	38	40	11	11	13	14
8	36	37	36	37	37	39	39	11	12	12	14	15
9	37	38	37	38	38	40	40	12	13	13	15	16
10	38	39	38	39	39	11	11	13	14	14	16	17
11	39	40	39	40	40	12	12	14	15	15	17	18
12	40	11	40	11	11	13	13	15	16	16	18	19
13	11	12	11	12	12	14	14	16	17	17	19	20
14	12	13	12	13	13	15	15	17	18	18	20	21
15	13	14	13	14	14	16	16	18	19	19	21	22
16	14	15	14	15	15	17	17	19	20	20	22	23
17	15	16	15	16	16	18	18	20	21	21	23	24
18	16	17	16	17	17	19	19	21	22	22	24	25
19	17	18	17	18	18	20	20	22	23	23	25	26
20	18	19	18	19	19	21	21	23	24	24	26	27
21	19	20	19	20	20	22	22	24	25	25	27	28
22	20	21	20	21	21	23	23	25	26	26	28	29
23	21	22	21	22	22	24	24	26	27	27	29	30
24	22	23	22	23	23	25	25	27	28	28	30	31
25	23	24	23	24	24	26	26	28	29	29	31	32
26	24	25	24	25	25	27	27	29	30	30	32	33
27	25	26	25	26	26	28	28	30	31	31	33	34
28	26	27	26	27	27	29	29	31	32	32	34	35
29	27		27	28	28	30	30	32	33	33	35	36
30	28		28	29	29	31	31	33	34	34	36	37
31	29		29		30		32	34		35		38

A TABLE answering to any of the foregoing Numbers.

Numbers	Times answering. H.	M.	
11	0	48	
12	1	36	
13	2	24	
14	3	12	
15	4	00	
16	4	48	
17	5	36	
18	6	24	Afternoon
19	7	12	
20	8	00	
21	8	48	
22	9	36	
23	10	24	
24	11	12	
25	12	00	
26	0	48	
27	1	36	
28	2	24	
29	3	12	
30	4	00	
31	4	48	
32	5	36	
33	6	24	After Midnight
34	7	12	
35	8	00	
36	8	48	
37	9	36	
38	10	24	
39	11	12	
40	12	00	

The Use of the foregoing Tables *of* Numbers.

IN thefe Tables, each Page is divided into two Parts, by a double Line drawn down the Middle ; and each of the Parts are marked at the Top with the Year for which they fhew the Numbers, and under that, the Left-hand Column of each Part is marked with the Days of the Month, and the other Columns with the Months of the Year : So that if you would know the Number for any Day, fuppofe for Example, on the 20th of *March*, 1766.

Firft, Find the given Year 1766, at the Top of the Table, and then under the given Month, which is *March*, and right againft the given Day of the Month (which in this Cafe is 20) you will find the Number 19, which is the Number for that Day ; and if from the Number fo found you fubtract 10, the Remainder will be the Moon's Age for that Day.

The Ufe of the Table of the Times anfwering to the foregoing Numbers.

In this Table the Left-hand Column is mark'd with the given Numbers from 11 to 40, and the Figures right againft any of thefe Numbers, give the Time anfwering to it, in Hours and Minutes.

EXAMPLE I.

I would know what Time anfwers to the Number 23 ?

Anfwer. 10 Hours 24 Minutes Afternoon, that is, at 24 Minutes paft 10 at Night.

EXAMPLE II.

What Number and Time anfwers to the 8th of January, 1774.

Firft, By the Tables of Numbers, I find the Number to be 36, and againft that Number, in the Table of Times, I find 8 Hours 48 Minutes after Midnight, that is 48 Minutes paft Eight in the Morning.
A

A.	H	M
At *Army*	01	03
At *Amsterdam* and *Armontie*	03	00
At *Abarwark*	04	30
At *Abarmorick* and *Antwerk*	06	00
At *Aldborough*	09	45

B.	H	M
At *Beachy, Blacktail*, and before the Race of *Blanquet*	12	00
Thwart of *Beachy*	12	45
At *Blackness* in *Bluet*, and at *Bell-Isle*	01	30
Without *Bluet*, and at *Berwick*	02	15
Bourdeaux River, the South Coast of *Bretaigne*, the Coast of *Biscay*, and at *Bockness*	03	00
At *Brest*, before the *Base*, and the River of *Bourdeaux*, within the Haven	03	45
In *Breesound, Bloy* and *Baltimore*	04	30
Before *Bremen* and at *Blackney*, and in the Channel before *Bourdeaux*	06	00
At *Bristol* Key	06	45
At *Bridgewater*	07	30
Bullen Deep	10	30

C.	H	M
In *Condado*	12	00
In the Chamber of *Rye*	00	45
Without *Calis*, at *Corpus Christi* Point, and at *Camser*	01	30
Between *Calis*, and *Dover*, before *Conquet*, and at the North Cape	03	00

	H	M
At *Cork, Calis*, Cape *Clear*, and in the Creek	04	30
At *Caldy* and *Comarthen* Bay	05	15
At *Concalo*	06	00
Without the *Caskets*	08	15
Between the *Caskets* and *Guernsey*, before *Cromer*, at *Seven Cliffs*, and at *Catness*	09	00
At the *Caskets* and *Chamberness*	09	45
At *Cows*, in the Foss of *Caen*, in *Calice* and *Chamberness* Roads	10	30
Before the Haven of *Caen*, in the *Chamber*, between *Cripple Sand*, and the *Croyle*, and at *Calshot*	11	15

D.	H	M
At *Dover* Pier, and before *Dunkirk*	12	00
At *Denbeigh* & *Downs* Road	02	15
At *Dort*	03	00
At *Dungarven*	04	30
At *Dartmouth*	06	00
At *Dublin*	08	15
At *Dunbar*	09	00
At *Dungeness* and *Dunnose*	09	45
At *Dover, Diepe* and *Deal*	10	30

E.	H	M
At *Emden*, before the *Elve*, before the *Eyder*, and before *Enchusen*	12	00
At *Edam*	01	30
Before the Eastern & Western *Emes*, and at *Engoments*	09	00

On

F.	H	M
On the Coast of *Flanders* ——	12	00
At *Flushing* ——————	00	45
Before the *Fen* in the Channel ———————	01	30
Without *Fountny*————	02	15
Without the Banks of *Flanders* ———————	03	00
At *Flamborough* and *Bridlington* ————————	04	30
At the *Forn*, in *Foy* at *Falmouth* ———————	05	15
Between *Foy* & *Falmouth* in the Channel, and at *Foulness*	06	45
Before the Coast of *Friezland* and the *Fly* ———	07	30
Without the *Fly* ———	08	15
At *Frieze* and *Fair Isle* ——	09	00
At the *Frith* and South *Foreland* ——————	10	30
In *Fair Isle* Road, & at the North *Foreland* ———	11	15

G.		
In *Gibralter* Road, *Graveling* and before *Cherburg* ——	12	00
Before *Goree*, at *Guernsey* & at *Gravesend*————	01	30
At *Groine*, at *Gascoign*, and the Coast of *Galicia* ——	03	00
Thwart of *Guernsey* ———	09	45
In the *Chamber*, and *Goree-end* ————————	11	15

H.		
Before the *Hever*, before *Horn*, and at *Hampton-Key* ——	12	00

	H	M
Under *Holy* Island & at *Horn*	01	30
Before *Hartlepoole* ———	03	00
At *Huntcliff-Foot* ————	03	45
At *Humber* ——————	05	15
Before *Hamborough*, at *Hull*, at the *Holmes*, and before *Humbers* Mouth ————	06	00
At *Haerlem*, *Havre de Grace* and *Home-head*————	09	00
At St. *Hellens*, and *Harwich* and without the Banks of *Harwich* ———————	10	30
At *Harwich* within ———	11	15

I.		
At *Jutland* Islands ———	12	00
On the W. Coast of *Ireland*	03	00
In all the Havens on the South Coast of *Ireland* ——	05	15

K.		
Kentish Knock ———	12	00
At *Kelliers* —————	03	00
At *Kingsale* —————	04	30
At *Kilduyn* —————	07	30
At *Kildive*—————	09	00

L.		
At *Leith* ——————	12	00
At *Lisbon* —————	02	15
At *London* —————	03	00
Thwart of *Londey* and before *Lynn* —————	05	15
At *Lynn* half Tide, at *Londey* —————	06	00
At *Lynn* —————	06	45

A   M

	H	M
At the *Lizard* by the Land	07	30
At *Lambay*	08	15
At *Leyftoff*, and thwart off it without the Banks	09	45
In *Leyftoff* Road, and at Long Sand-Head	10	30

M.

	H	M
Within the *Maes* at *Maldon*	00	45
Before the *Maes*	01	30
At the *Maes* and before St. *Matthew's* Point	03	45
In *Moufe-hole*, at St. *Matthew's*, & within *Mount's-Bay*	04	30
In *Milford*, at *Moonlefs* and at St. *Maloes*	05	15
Between *Moufe-Hole*, and *Falmouth*, & in *Milford-Haven*	07	30
In St. *Magnes* Sound and *Magnes* Caftle	08	15
At the *Ifle of Man*	09	00
Before *Margate*	11	15

N.

	H	M
At *Newport* Half-Tide	12	00
At the Weft-end of the *Nore*	00	45
Before *Nantz* River	03	00
At *Newcaftle*	05	15
Before St. *Nicholas*	06	45
At the *Needles*, at the *Ifle of Wight*	08	15
All the Coaft of *Normandy* and *Picardy*	10	30
Between the *Naze* and *Warhead* of *Lower*	11	15

O.

	H	M
At *Orknefs*	03	00
At *Orkney*	09	00
At *Orfordnefs*	09	45
At *Orfordnefs*, without the Banks, and between *Orford* and *Orwell Waves*	10	30
At *Orfordnefs* within the Sands	11	15

P.

	H	M
At *Portfmouth* Half-Tide	11	15
At the *Pens*, *Porthus* and *Poictu*	03	00
On the Coaft of *Portugal*	03	45
In *Plymouth*, and before St. *Paul's*	05	15
In the Haven at St. *Paul's*	06	00
Before *Podeffemeck*	06	45
Thwart of *Plymouth*	07	30
At the Race of *Portland*	09	00

Q.

	H	M
At *Quinbrough*	12	00

R.

	H	M
At *Rochefter*	00	45
At *Ramkins*	01	30
At *Rotterdam*, in *Robinhood's*-Bay, and from the *Race* to the *Pole-Head*	03	00
At *Rouen* and before *Rochel*	03	45
In *Ramfey*	05	15

S.

	H	M
In the *Sleeve*, between *Ufhant* and *Scilly*, at the *Shoe*, at the *Spitts*, at *Southampton*, and along the *Swin*	12	00

Upon

	H	M
Upon the Coaſt of *Spain*, and in *Shetland* ——	03	00
At *Scilly*, in the *Sound*, *Scarburgh*, and at *Staples* ——	03	45
At *Seven Iſles*, without the Haven in the *Broad-Sound* ——	04	30
At the Mouth of *Severn*, between *Scilly* and the *Lizard*, at the *Spurn* and *Stockton* ——	05	15
Without *Scilly*, in the Channel, and at *Salcomb* ——	06	00
At *Sedmouth* & at the *Start*	06	45
Off the *Start* in the Channel	07	30
Within the *Seyn* and before *Shelburgh* ——	09	00
At *Shorehom* ——	09	45
At *Seyn-Head* ——	10	30

T.

	H	M
Within *Tervere* ——	00	45
Before *Tervere*, before the *Thames* and at *Tinmouth* ——	01	30
Before the *Tees* & *Tinmouth* before the Bay of *Tinmouth*—	03	00
At the Cliffs of the *Texel*	04	30
In *Torbay* and before the *Texel* ——	06	00
In the Road of the *Texel*	07	30
At *Torgen* ——	09	45

U.

	H	M
Before *Ureck*——	12	00
At *Uſe*——	03	00
Between *Uſhant* & the Main	03	45
In the *Vourd*, at the Bay, within *Uſhant* ——	04	30

	H	M
Without *Uſhant* ——	06	00
St. *Vallery*——	10	30

W.

	H	M
At *Winchelſey* ——	00	45
At the *Weilings*, and from the Weſt-end of the *Wight* —	01	30
Before the *Weilings* ——	02	15
At *Whitby* ——	03	00
In the Sea of *Wales* and *Severn* ——	04	30
In *Wales* ——	05	15
At *Wells*, at *Weymouth* and at *Waterford* ——	06	00
At *Weymouth Key* ——	06	45
At the *Neſs*, by *Wiering-hen*, at *Winterton*——	07	30
Thwart of the *Iſle of Wight* in the Channel, all within the *Wight*, between the *Wight* and *Beachy* by the Shore——	08	15
At the E. end of the *Wight*, and on *Wieringhen-Flats* ——	09	00

Y.

	H	M
Before *Yarmouth* ——	01	30
At *Youghall*——	04	30
At *Yarmouth* ——	08	15
In *Yarmouth* Roads, and *Yarmouth* Haven ——	10	30

Z.

	H	M
On the Coaſt of *Zealand* —	01	30
In the *Zerick-Sea*——	03	00

The

The Ufe of the TIDE-TABLE, *in finding the Time of* High-Water.

IN this Table the Names of the Places being fet in Alphabetical Order, they will always be found under the Letter they begin with, as for Example, *London*, will be found under the Letter L, *Torbay* under T. *Scilly* under S, *&c.* and the Figures right againft any Place fhews the Time of High-Water at that Place, on the Full and Change of the Moon.

Then if it be required to find the Time of High-Water at any Place upon any given Day, Firft, (by the Tables of Numbers and Times anfwering) find the Number and Time anfwering for that Day, (as before taught) and to that Time, add the Hours and Minutes that ftand in the Tide-Table againft the Place you would know the Time of High-Water at, the Sum, if it does not exceed 12 Hours, will be the Time of High-Water required ; but if it fhould be more than 12 Hours, then fubtract 12 from it, and the Remainder will be the Time of High-Water.

EXAMPLE I.

Suppofe it was required to find the Time of High-Water at London, *on 30th of* January, 1773

By the Table of Numbers, I find the Number for the 30th of *January*, to be 17, with which Number entring the Table of Times, I find the Time anfwering to be 5 H. 36 M. then looking for *London* in the Tide-Table, I find against it 3 Hours, which added to the Time before found, gives 8 H. 36 M. for the Time of High-Water at *London*, on the 30th of *January*, 1773.

EXAMPLE II.

Suppofe it was required to find the Time of High-Water at St. Hellens, *on the 19th of* Auguft, 1774.

Having found the Number (as before) to be 22, and the Time anfwering to be 9 H. 36 M. I look in the Tide-Table under the Letter H, for *St. Hellens*, againft which I find 10 H. 30 M. which added to the Time (as before) 9.36 gives 20,06, from which fubtract 12,00 and the Remainder 8 H. 06 M. is the Time of High-Water required.

A

A TABLE of the Sun's Declination for the Years 1765, 1769, 1773, and 1777.

M. Day.	Jan.	Feb.	March	April	May	June	July	Auguſt	Septem.	October	Novem.	Decem.
	South	South	South	North	North	North	North	North	North	South	South	South
1	22 58	16 56	07 22	04 45	15 14	22 08	23 07	17 56	08 08	03 23	14 37	21 55
2	22 53	16 39	06 59	05 08	15 32	22 16	23 02	17 41	07 46	03 46	14 56	22 04
3	22 47	16 21	06 36	05 31	15 49	22 23	22 57	17 25	07 24	04 09	15 15	22 13
4	22 41	16 03	06 13	05 54	16 07	22 30	22 52	17 09	07 02	04 33	15 34	22 21
5	22 34	15 45	05 50	06 16	16 24	22 37	22 47	16 53	06 39	04 56	15 52	22 28
6	22 26	15 26	05 27	06 39	16 41	22 43	22 41	16 37	06 17	05 19	16 10	22 35
7	22 19	15 07	05 03	07 02	16 57	22 49	22 34	16 20	05 55	05 42	16 28	22 42
8	22 11	14 48	04 40	07 24	17 14	22 54	22 27	16 03	05 32	06 05	16 45	22 48
9	22 02	14 29	04 17	07 46	17 30	22 59	22 20	15 45	05 07	06 28	17 02	22 54
10	21 53	14 10	03 53	08 08	17 45	23 04	22 13	15 28	04 46	06 51	17 19	23 00
11	21 43	13 50	03 30	08 30	18 01	23 08	22 05	15 10	04 28	07 13	17 36	23 04
12	21 34	13 30	03 06	08 52	18 16	23 12	21 56	14 52	04 01	07 36	17 52	23 09
13	21 23	13 10	02 42	09 14	18 31	23 15	21 48	14 34	03 38	07 58	18 08	23 13
14	21 13	12 50	02 19	09 36	18 45	23 18	21 39	14 15	03 14	08 21	18 24	23 16
15	21 02	12 29	01 55	09 57	18 59	23 21	21 29	13 56	02 51	08 43	18 39	23 19
16	20 50	12 08	01 31	10 18	19 13	23 23	21 20	13 37	02 28	09 05	18 54	23 22
17	20 38	11 47	01 08	10 39	19 27	23 25	21 09	13 18	02 05	09 27	19 09	23 24
18	20 26	11 26	00 44	11 00	19 46	23 26	20 59	12 59	01 42	09 49	19 23	23 26
19	20 13	11 04	00 20	11 21	19 53	23 27	20 48	12 39	01 18	10 11	19 37	23 27
20	20 00	10 43	No.03	11 42	20 05	23 28	20 37	12 19	00 55	10 32	19 51	23 28
21	19 47	10 21	00 27	12 02	20 17	23 28	20 25	11 59	00 31	10 54	20 04	23 28
22	19 33	09 59	00 51	12 22	20 29	23 28	20 13	11 39	00 08	11 15	20 17	23 28
23	19 19	09 37	01 14	12 42	20 41	23 27	20 01	11 19	Sou 15	11 36	20 29	23 27
34	19 04	09 15	01 38	13 02	20 52	23 26	19 48	10 58	00 39	11 57	20 41	23 26
25	18 49	08 53	02 02	13 21	21 03	23 24	19 36	10 38	01 02	12 18	20 53	23 24
26	18 34	08 30	02 25	13 41	21 13	23 22	19 22	10 17	01 26	12 39	21 05	23 22
27	18 19	08 08	02 49	14 00	21 23	23 20	19 09	09 56	01 49	12 59	21 16	23 20
28	18 03	07 45	03 12	14 19	21 33	23 17	18 55	09 34	02 13	13 19	21 26	23 16
29	17 47		03 35	14 37	21 42	23 14	18 41	09 13	02 36	13 39	21 36	23 13
30	17 30		03 59	14 56	21 51	23 10	18 26	08 51	02 59	13 59	21 46	23 09
31	17 13		04 22		22 00		18 11	08 30		14 18		23 05

A TABLE of the Sun's Declination for the Years 1766, 1770, 1774, and 1778.

M. Day.	Jan.	Feb.	March	April	May	June	July	August	Septem.	October	Novem.	Decem.
	South	South	South	North	North	North	North	North	North	South	South	South
1	23 00	17 00	07 28	04 39	15 09	22 06	23 08	18 00	08 13	03 17	14 33	21 53
2	22 54	16 43	07 05	05 02	15 27	22 14	23 03	17 45	07 51	03 41	14 52	22 02
3	22 48	16 25	06 42	05 25	15 45	22 21	22 59	17 29	07 29	04 04	15 11	22 11
4	22 42	16 07	06 19	05 48	16 03	22 29	22 54	17 13	07 07	04 27	15 29	22 19
5	22 35	15 49	05 56	06 11	16 20	22 35	22 48	16 57	06 45	04 50	15 48	22 26
6	22 28	15 31	05 32	06 34	16 37	22 42	22 42	16 40	06 23	05 13	16 06	22 34
7	22 21	15 12	05 09	06 56	16 53	22 47	22 36	16 24	06 00	05 36	16 23	22 40
8	22 13	14 53	04 46	07 19	17 10	22 53	22 29	16 07	05 37	05 59	16 41	22 47
9	22 04	14 34	04 25	07 41	17 26	22 58	22 22	15 50	05 15	06 22	16 58	22 53
10	21 55	14 14	03 59	08 03	17 41	23 03	22 15	15 32	04 52	06 45	17 15	22 58
11	21 46	13 55	03 35	08 25	17 57	23 07	22 07	15 14	04 29	07 08	17 32	23 03
12	21 36	13 35	03 12	08 47	18 12	23 11	21 59	14 56	04 06	07 30	17 48	23 08
13	21 26	13 15	02 48	09 09	18 27	23 15	21 50	14 38	03 43	07 53	18 04	23 12
14	21 15	12 54	02 24	09 30	18 42	23 18	21 41	14 20	03 20	08 15	18 20	23 16
15	21 04	12 34	02 01	09 52	18 56	23 20	21 32	14 01	02 57	08 38	18 36	23 19
16	20 53	12 13	01 37	10 13	19 10	23 23	21 22	13 42	02 34	09 00	18 51	23 21
17	20 41	11 52	01 13	10 34	19 23	23 25	21 12	13 23	02 10	09 22	19 05	23 24
18	20 29	11 31	00 50	10 55	19 37	23 26	21 01	13 04	01 47	09 44	19 20	23 25
19	20 16	11 09	00 26	11 16	19 50	23 27	20 51	12 44	01 24	10 06	19 34	23 27
20	20 03	10 48	00 02	11 37	20 02	23 28	20 40	12 24	01 00	10 27	19 47	23 28
21	19 50	10 26	No. 21	11 57	20 15	23 28	20 28	12 04	00 37	10 49	20 01	23 28
22	19 36	10 04	00 45	12 17	20 26	23 28	20 16	11 44	00 14	11 10	20 14	23 28
23	19 22	09 42	01 09	12 37	20 38	23 27	20 04	11 24	Sou 10	11 31	20 26	23 27
24	19 08	09 20	01 32	12 57	20 49	23 26	19 52	11 03	00 33	11 52	20 39	23 26
25	18 53	08 58	01 56	13 17	21 00	23 25	19 39	10 43	00 57	12 13	20 50	23 25
26	18 38	08 36	02 19	13 36	21 11	23 23	19 26	10 22	01 20	12 34	21 02	23 23
27	18 22	08 13	02 43	13 55	21 21	23 21	19 12	10 01	01 44	12 54	21 13	23 20
28	18 07	07 50	03 06	14 14	21 31	23 18	18 58	09 40	02 07	13 14	21 24	23 17
29	17 50		03 30	14 33	21 40	23 15	18 44	09 18	02 30	13 34	21 34	23 14
30	17 34		03 53	14 51	21 49	23 11	18 30	08 57	02 54	13 54	21 44	23 11
31	17 07		04 16		21 58		18 15	08 35		14 14		23 07

A TABLE of the Sun's Declination for the Years 1767, 1771, 1775, and 1779.

M. Day	Jan.	Feb.	March	April	May	June	July	August	Septem.	October	Novem.	Dec.
	South	South	South	North	North	North	North	North	North	South	South	South
1	23 01	17 04	07 33	04 34	15 05	22 04	23 08	18 03	08 19	23 12	14 24	21 51
2	22 56	16 47	07 10	04 57	15 23	22 12	23 04	17 48	07 57	03 35	14 47	22 00
3	22 50	16 30	06 47	05 20	15 41	22 20	23 00	17 33	07 35	03 58	15 06	22 09
4	22 44	16 12	06 24	05 43	15 58	22 27	22 55	17 17	07 13	04 21	15 25	22 17
5	22 37	15 54	06 01	06 05	16 16	22 34	22 49	17 01	06 50	04 45	15 43	22 25
6	22 30	15 35	05 38	06 28	16 33	22 40	22 44	16 45	06 28	05 08	16 01	22 32
7	22 23	15 17	05 15	06 51	16 49	2 46	22 37	16 28	06 05	05 31	16 19	22 39
8	22 15	14 58	04 51	07 13	17 06	22 52	22 31	16 11	05 43	05 54	16 37	22 45
9	22 06	14 39	04 28	07 36	17 22	22 57	22 24	15 54	05 20	06 17	16 54	22 51
10	21 57	14 19	04 04	07 58	17 38	23 02	22 16	15 36	04 58	06 40	17 11	22 57
11	21 48	13 59	03 41	08 20	17 53	23 06	22 09	15 19	04 35	07 02	17 28	23 02
12	21 38	13 40	03 17	08 42	18 09	23 10	22 01	15 01	04 12	07 25	17 44	23 07
13	21 28	13 20	02 54	09 04	18 23	23 14	21 52	14 43	03 49	07 48	18 00	23 11
14	21 18	12 59	02 30	09 25	18 38	23 17	21 43	14 24	03 26	08 10	18 16	23 15
15	21 07	12 39	02 06	09 47	18 52	23 20	21 34	14 06	03 02	08 32	18 32	23 18
16	20 56	12 18	01 43	10 08	19 06	23 22	21 24	13 47	02 39	08 55	18 47	23 21
17	20 44	11 57	01 19	10 29	19 20	23 24	21 14	13 28	02 16	09 17	19 02	23 22
18	20 22	11 36	00 45	10 50	19 33	23 26	21 04	13 08	01 53	09 38	19 16	23 25
19	20 19	11 15	00 32	11 11	19 47	23 27	20 53	12 49	01 29	10 00	19 30	23 26
20	20 06	10 53	00 08	11 32	19 59	23 28	20 42	12 29	01 06	10 22	19 44	23 27
21	19 53	10 32	No.16	11 52	20 12	23 28	20 31	12 09	00 43	10 44	19 58	23 28
22	19 40	10 10	00 39	12 12	20 24	23 28	20 19	11 49	00 19	11 05	20 11	23 28
23	19 26	09 48	01 03	12 32	20 35	23 27	20 07	11 29	Sou 04	11 26	20 23	23 27
24	19 11	09 26	01 27	12 52	20 47	23 26	19 55	11 08	00 28	11 47	20 36	23 26
25	18 57	09 03	01 50	13 12	20 58	23 25	19 42	10 48	00 51	12 08	20 48	23 25
26	18 42	08 41	02 14	13 31	21 08	23 23	19 29	10 27	01 14	12 29	20 59	23 23
27	18 26	08 19	02 37	13 51	21 18	23 21	19 15	10 06	01 38	12 49	21 10	23 21
28	18 10	07 56	03 01	14 10	21 28	23 19	19 02	09 45	02 01	13 09	21 21	23 18
29	17 54		03 24	14 28	21 38	23 16	18 48	09 23	02 25	13 29	21 31	23 15
30	17 38		03 47	14 47	21 47	23 12	18 33	09 02	02 48	13 49	21 41	23 11
31	17 21		04 10		21 56		18 19	08 40		14 09		23 07

A TABLE of the Sun's Declination for the Years 1768, 1772, 1776, and 1780.

M. Day	Jan.	Feb.	March	April	May	June	July	Auguſt	Septem.	October	Novem.	Dec.
	South	South	South	North	North	North	North	North	North	South	South	South
1	23 02	17 10	07 17	04 50	15 18	22 10	23 05	17 53	08 03	03 29	14 42	21 58
2	22 57	16 54	06 54	05 13	15 36	22 18	23 01	17 37	07 41	03 52	15 01	22 06
3	22 51	16 35	06 31	05 36	15 54	22 25	22 56	17 21	07 19	04 15	15 20	22 15
4	22 46	16 17	06 08	06 00	16 11	22 32	22 51	17 05	07 56	04 38	15 38	22 23
5	22 39	15 59	05 44	06 22	16 28	22 38	22 45	16 49	06 34	05 01	15 56	22 30
6	22 32	15 40	05 21	06 45	16 46	22 44	22 39	16 32	06 12	05 25	16 14	22 37
7	22 25	15 22	04 58	07 07	17 01	22 50	22 33	16 16	05 49	05 48	16 32	22 44
8	22 17	15 03	04 34	07 30	17 17	22 56	22 26	15 59	05 26	06 10	16 49	22 50
9	22 08	14 44	04 11	07 52	17 33	23 01	22 18	15 41	05 04	06 33	17 07	22 56
10	22 00	14 24	03 47	08 14	17 49	23 05	22 11	15 24	04 41	06 56	17 23	23 01
11	21 51	14 05	03 24	08 36	18 04	23 09	22 03	15 06	04 18	07 19	17 40	23 06
12	21 41	13 45	03 00	08 58	18 19	23 13	21 54	14 48	03 50	07 41	17 56	23 10
13	21 31	13 25	02 37	09 19	18 34	23 16	21 46	14 29	03 32	08 04	18 12	23 14
14	21 21	13 05	02 13	09 41	18 59	23 19	21 37	14 11	03 10	08 26	18 28	23 17
15	21 10	12 44	01 49	10 02	19 03	23 22	21 27	13 52	02 46	08 48	18 43	23 20
16	20 59	12 24	01 26	10 24	19 16	23 24	21 17	13 33	02 22	09 11	18 58	23 23
17	20 47	12 03	01 02	10 46	19 30	23 25	21 07	13 14	01 59	09 33	19 12	23 25
18	20 35	11 42	00 38	11 05	19 43	23 26	20 57	12 54	01 36	09 54	19 27	23 26
19	20 22	11 20	00 14	11 26	19 56	23 27	20 45	12 34	00 13	10 16	19 40	23 27
20	20 10	10 59	No.09	11 47	20 08	23 28	20 34	12 15	00 40	10 38	19 54	23 28
21	19 57	10 37	00 33	12 07	20 20	23 28	20 22	11 54	00 26	10 59	20 07	23 28
22	19 43	10 16	00 56	12 27	20 32	23 27	20 10	11 34	00 02	11 20	20 20	23 28
23	19 29	09 54	01 20	12 47	20 43	23 26	19 58	11 14	Sou 21	11 41	20 32	23 27
24	19 15	09 31	01 45	13 07	20 55	23 25	19 45	10 53	00 45	12 02	20 44	23 26
25	19 01	09 09	02 07	13 26	21 05	23 24	19 32	10 32	01 08	12 23	20 56	23 24
26	18 46	08 47	02 31	13 45	21 16	23 22	19 19	10 12	01 31	12 43	21 07	23 22
27	18 30	08 25	02 54	14 04	21 26	23 19	19 05	09 50	01 55	13 04	21 18	23 19
28	18 15	08 02	03 18	14 23	21 35	23 17	18 52	09 29	02 18	13 24	21 29	23 16
29	17 59	07 39	03 41	14 42	21 44	23 13	18 33	09 08	02 42	13 41	21 39	23 12
30	17 42		04 04	15 00	21 53	23 10	18 23	08 46	03 05	14 03	21 48	23 08
31	17 26		04 27		22 02		18 08	08 24		14 23		23 00

A TABLE of the Variation of the Sun's Declination to every 10 Degrees of Longitude.

Degrees of Longitude from the Meridian of LONDON.

Daily Vari. Min.	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
	min	min	min	min	min	min	min	min	min	min	min	min	min	min	min	min	min	min
2	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
3	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
4	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2
5	0	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2
6	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3
7	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3
8	0	0	1	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4
9	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
10	0	1	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	5
11	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	5	5
12	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	6
13	0	1	1	1	2	2	2	3	3	4	4	4	5	5	5	6	6	6
14	0	1	1	2	2	2	3	3	3	4	4	5	5	5	6	6	7	7
15	0	1	1	2	2	3	3	3	4	4	5	5	5	6	6	7	7	7
16	0	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	8
17	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	7	8	8
18	1	1	2	2	3	3	4	4	5	5	6	6	7	7	7	8	9	9
19	1	1	2	2	3	3	4	4	5	5	6	6	7	7	7	8	9	9
20	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10
21	1	1	2	2	3	4	4	5	5	6	6	7	8	8	9	9	10	10
22	1	1	2	2	3	4	4	5	6	6	7	7	8	9	9	10	10	11
23	1	1	2	3	3	4	4	5	6	6	7	7	8	8	9	10	11	11
24	1	1	2	3	3	4	5	5	6	6	7	7	8	9	9	10	11	12

N

To

To find the Sun's Declination, by the foregoing TABLES.

EACH Page of the foregoing Tables contains the Sun's Declination for the four Years that it is mark'd with at the Top, and is divided into thirteen Columns; the firſt of which to the Left-Hand, ſhews the Day of the Month, and the other Twelve the Months of the Year, ſo that if it be required to find the Sun's Declination for any Day, at ſuppoſe for Example, on the 21ſt of *Auguſt*, 1767: Firſt I look for that Table that has 1767. at the Top of it, and then right againſt the 21ſt Day of the Month, and under *Auguſt*, I find 12, 10. which ſhews the Sun's Declination to be 12 Degrees 10 Minutes North; according to the Title at the Top of the Column.

The Sun's Declination in theſe Tables being calculated for the Meridian of *London*, if you ſhould be conſiderable to the Eaſtward, or to the Weſtward of *London*, it will cauſe ſome Alteration in it; to correct which, the

Table of Variation of the Sun's Declination is to be uſed as follows.

Firſt, Look out the Declination for the given Day of the Month, and for the Day following it, and ſubtract the leſſer from the greater, the Remainder is the daily Variation.

Second, Obſerve whether the Declination be increaſing or decreaſing, which you may know thus; if the Declination for the Day following the given Day be biggeſt, than it is increaſing; but if it be leaſt, it is decreaſing.

Third, Look for the Daily Variation in the firſt Column of the Table, and ſee what Number ſtands right againſt it, and under the given Degrees of Longitude; which Number is to be uſed as follows.

If the Difference of Longitude be Eaſterly, and the Declination increaſing, it muſt be ſubstracted from the Declination found in the Tables for the given Day; but if the Declination be decreaſing, it muſt be added.

If the Difference of Longitude be Weſterly, and the Declination increaſing, it muſt be added; but if the Declination be decreaſing, it muſt be ſubstracted; the Sum in one Caſe, and the Remainder in the other will be the Sun's Declination at Noon in the Longitude required.

A

A TABLE of the Sun's Right Afcenfion.

M. Day	Jan.		Feb.		March		April		May		June		July		Auguft		Septem.		October		Novem.		Dec.	
	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M	H	M
1	18	50	21	02	22	51	00	44	02	35	04	38	06	42	08	47	10	43	12	31	14	28	16	32
2	18	54	21	06	22	54	00	48	02	39	04	42	06	46	08	51	10	47	12	35	14	31	16	36
3	18	58	21	10	22	58	00	51	02	43	04	46	06	50	08	55	10	50	12	38	14	35	16	40
4	19	03	21	14	23	02	00	55	02	47	04	50	06	55	08	59	10	54	12	42	14	39	16	45
5	19	07	21	18	23	05	00	59	02	51	04	54	06	59	09	02	10	57	12	46	14	43	16	49
6	19	12	21	22	23	09	01	02	02	54	04	59	07	03	09	06	11	01	12	49	14	47	16	53
7	19	16	21	26	23	13	01	06	02	58	05	03	07	07	09	10	11	05	12	53	14	51	16	58
8	19	20	21	30	23	17	01	10	03	02	05	07	07	11	09	14	11	08	12	57	14	55	17	02
9	19	25	21	34	23	20	01	13	03	06	05	11	07	15	09	18	11	12	13	00	14	59	17	07
10	19	29	21	38	23	24	01	17	03	10	05	15	07	19	09	21	11	16	13	04	15	03	17	11
11	19	33	21	42	23	28	01	21	03	14	05	19	07	23	09	25	11	19	13	08	15	07	17	15
12	19	38	21	46	23	31	01	24	03	18	05	23	07	27	09	29	11	23	13	11	15	12	17	20
13	19	42	21	50	23	35	01	28	03	22	05	27	07	31	09	33	11	26	13	15	15	16	17	24
14	19	46	21	53	23	39	01	32	03	26	05	32	07	36	09	37	11	30	13	19	15	20	17	29
15	19	51	21	57	23	42	01	35	03	30	05	36	07	40	09	40	11	33	13	23	15	24	17	33
16	19	55	22	01	23	46	01	39	03	34	05	40	07	44	09	44	11	37	13	26	15	28	17	38
17	19	59	22	05	23	50	01	43	03	38	05	44	07	48	09	48	11	41	13	30	15	32	17	42
18	20	04	22	09	23	53	01	46	03	41	05	48	07	52	09	52	11	44	13	34	15	36	17	46
19	20	08	22	13	23	57	01	50	03	45	05	52	07	56	09	55	11	48	13	38	15	40	17	51
20	20	12	22	17	00	00	01	54	03	49	05	57	08	00	09	59	11	51	13	41	15	45	17	55
21	20	16	22	20	00	04	01	58	03	53	06	01	08	04	10	03	11	55	13	45	15	49	18	00
22	20	20	22	24	00	07	02	01	03	57	06	05	08	08	10	06	11	59	13	49	15	53	18	04
23	20	25	22	28	00	11	02	05	04	01	06	09	08	12	10	10	12	02	13	53	15	57	18	09
24	20	29	22	32	00	15	02	09	04	06	06	13	08	16	10	14	12	06	13	57	16	02	18	13
25	20	33	22	36	00	19	02	13	04	10	06	17	08	20	10	17	12	09	14	00	16	06	18	18
26	20	37	22	39	00	22	02	16	04	14	06	22	08	23	10	21	12	13	14	04	16	10	18	22
27	20	41	22	43	00	26	02	20	04	18	06	26	08	27	10	25	12	17	14	08	16	14	18	26
28	20	45	22	47	00	30	02	24	04	22	06	30	08	31	10	28	12	20	14	12	16	19	18	31
29	20	49			00	33	02	28	04	26	06	34	08	35	10	32	12	24	14	16	16	23	18	40
30	20	54			00	37	02	31	04	30	06	38	08	39	10	36	12	27	14	20	16	27	18	40
31	20	58			00	40			04	34			08	43	10	39			14	24			18	44

A

A TABLE of the Right Ascension and Declination of some of the most noted Fixed Stars.

The Names of the Stars.	Right Ascen. H. M.		Declina- tion D. M.	
The Bright Star of Aries	01	53	22	17 N
Medusa's Head, Algol	02	52	39	59 N
The Bright-side of Perseus	03	07	48	58 N
The Bull's Eye, Aldebaran	04	22	15	59 N
The Goat Star, Capella	04	59	45	43 N
The Bright-foot of Orion, Regal	05	01	08	28 S
The Northern Horn of the Bull	05	09	28	21 N
Orion's Left Shoulder	05	10	06	04 N
The Southern Horn of the Bull	05	21	20	56 N
Middle Star in Orion's Belt	05	22	01	25 S
Orion's Right Shoulder	05	52	07	20 N
Auriga's Right Shoulder	05	44	44	54 N
Bright Foot of Gemini	06	20	16	38 N
The Dog Star, Syrius	06	34	16	23 S
Castor, or the Head of the Northermost Twin	07	17	32	24 N
The little Dog Star, Procyon	07	24	05	49 N
Pollux, or the Head of the Southermost Twin	07	28	28	36 N
Hydra's Heart	09	16	07	37 S
The Lyon's Heart, Regulus	09	53	13	09 N
The Lower of the Pointers	10	45	57	41 N
The Upper of the Pointers	10	46	63	03 N
The Lyon's Tail, Deneb	11	35	15	55 N
Upper of the two last in the square of Great Bear	12	02	58	35 N
The first in the Great Bear's Tail	12	41	57	18 N
The Virgin's Spike	13	12	09	52 S
The middle of the three in the Great Bear's Tail	13	11	56	22 N
Last but one in the Tail of Hydra	13	04	21	43 S
Last in the Great Bear's Tail	13	36	50	31 N
Arcturus	14	03	20	30 N
Bright Star in the Southern Ballance	14	35	14	53 S
Foremost Guard	15	51	75	15 N

Bright

A TABLE of the Fixed Stars.

The Names of the Stars.	Right Ascen. H. M.		Declination D. M.		
Bright Star of the Crown	15	22	27	33	N
Bright Star in Serpent's Neck	15	31	07	18	N
The Scorpion's Heart, Antares	16	14	25	51	S
The Head of Hercules	17	03	14	40	N
In the Head of Serpentarius	17	22	12	47	N
Bright Star in the Dragon's-Head	17	50	51	32	N
Lyræ, or the Harp	18	27	38	33	N
Swan's Beak	19	17	27	29	N
Bright Star in the Eagle	19	39	08	14	N
The Swan's Tail	20	33	44	19	N
Pegasus's Mouth	21	27	08	39	N
Fomelhaut	22	42	30	55	S
Pegasus's Wing, Marchab	22	53	13	53	N
Pegasus's Leg, Scheat	22	52	26	43	N
Caphus's Knee	23	20	76	07	N
The Head of Andromeda	23	54	27	34	N
End of Pegasus's Wing, Algenib	23	58	13	39	N
Pole Star	00	42	88	00	N
Girdle of Andromeda	00	53	34	05	N

A TABLE of the Right Ascension and Declination of the Crosiers.	Right Ascen. H. M.		Declination D. M.		
The Westermost of the two middle Stars	12	03	57	11	S
The Eastermost	12	33	58	06	S
The Northermost or highest Star	12	16	55	30	S
The Southermost or lowest	12	12	61	31	S

To

To work an Observation, or to find the Latitude of the Place by the Tables of the Sun or Stars Declination, and their Zenith Distance, &c.

Note, WHEN you take an Observation of the Sun, by the common Sea Quadrant, the Degrees and Minutes that your sight Vane stands at, being added to the Degrees that your Shade or Glass Vane stands at, will give the Zenith Distance (or Complement of the Meridian Altitude) with which and the Declination found in the Tables, you may find the Latitude as follows.

First, Take Notice whether the Sun or Star be to the Northward or to the Southward of you at the Time of Observation ; if they are to the Northward, call your Zenith Distance North ; or if they are to the Southward, call it South.   Then,

Second, If the Zenith Distance and Declination are both North, or both South, substract the lesser from the greater, the Remainder will be the Latitude you are in, of the same Name with the Declination, if that be greater than the Zenith Distance, otherwise of a contrary Name.

Example 1*st*, Being at Sea on the 23d of *August*, 1767, I observed at Noon, and had on my Quadrant 8.34, (and the Sun to the Northward of me) what Latitude am I in ?

Zenith Distance ——— ——— ——— ———	8. 34 North
Declination ——— ——— ——— ———	11. 30 North
Latitude by Observation ——— ——— ——	2. 56 North

Example 2*d*, Being at Sea on the 23*d* of *December*, I took the Altitude of the Dog Star *Syrius*, (on the Meridian to the Southward of me) 60 00, I would know the Latitude ?

Note, In all Cases (except where the Object is observed on the Meridian below the Pole) if the Meridian Altitude be given instead of the Zenith Distance, (as it is in this Example) then subtract it from 90. 00, and the Remainder will be the Zenith Distance.

Meridian Altitude from 90. 00, leaves the Zen. Dist.	30. 00 South
Star's Declination, (by the Table) ——— ———	16. 23 South
Latitude by Observation ——— ——— ———	13. 37 North

To

To work an Obſervation.

Caſe the 2d, If the Zenith Diſtance and Declination be one North, and the other South, add them together, and their Sum will be the Latitude in, of the ſame Name with the Declination.

Example 1ſt, Being at Sea, on the third of *November*, 1767, I obſerved at Noon, and had on my Quadrant 8.17, (and the Sun to the Northward of me) I demand the Latitude?

Zenith Diſtance ———— ———— ————	08. 17 North
Declination ———— ———— ———— ————	15. 06 South
Latitude by Obſervation ———— ———— ————	23. 23 South

Example 2d, Being at Sea on the 21ſt of *June*, 1769, I took the Altitude of the Bright Star in the *Harp*, *Lyræ*, (on the Meridian to the Southward of me) 51.00. I demand the Latitude.

Complement Altitude, or Zenith Diſtance ———	39. 00 South
Star's Declination ——— ——— ——— ———	38. 33 North
Latitude by Obſervation ——— ——— ———	77. 33 North

The foregoing Rules are for obſerving by the Sun or Stars, when they are at their greateſt Altitude, or upon the Meridian above the Pole; but as in ſome Parts of the Earth the Sun does not ſet for ſeveral Days, but ſome Stars never ſet; in that Caſe they may be obſerved upon the Meridian, twice in the 24 Hours, that is, once at their greateſt Height (as before) and again, when they are at the loweſt, or upon the Meridian below the Pole; to work which Obſervation take the following Rule.

Add the Complement of the Declination to the Meridian Altitude, the Sum is the Latitude of the ſame Name with the Declination.

Example, Being at Sea, I took the Altitude of the Pole Star on the Meridian below the Pole, 46.21, I demand the Latitude?

Meridian Altitude ——— ——— ——— ———	46. 21
Complement Declination ——— ——— ———	01. 56 North
Latitude by Obſervation ——— ——— ———	48. 17 North

The

Remarks by the Reviſer. The Author in the above Rules and Examples, takes the Sum of the Numbers found on his Quadrant, and works with it, as if true, to find the Latitude: But the Latitude ſo obtained will be ſeveral Minutes from the true Latitude. For obtaining which, the Zenith Diſtance as found by the Quadrant, muſt be firſt corrected, as ſhewn in the *Mariner's Compaſs Rectified*.

The Use of the TABLES of the Sun's and Stars Right Ascension, in finding what Time any known Star will be upon the Meridian, on any given Day.

Rule, Look for the Right Ascension of the Sun and Star in the foregoing Tables, and subtract the Sun's Right Ascension from the Star's; but if the Sun's Right Ascension be biggest, add 24 Hours to the Star's Right Ascension, and then subtract the Sun's from it, the Remainder will be the Time of the Star's coming to the Meridian after Noon.

Example 1st, What Time will the *Lion's Tail* be upon the Meridian, on the 14th of *April?*   h. m.

Stars Right Ascension ———— ———— ———— 11. 35
Sun's Right Ascension ———— ——— ——— ——— 01. 32

Time the Star will be on the Meridian ———— 10. 03 at Night.

Example 2d, What Time will the *Bull's Eye* be on the Meridian, on the 26th of *October?*

Star's Right Ascension 4h. 22m. add 24h. makes — 28. 22
Sun's Right Ascension ———— ——— ——— 14. 04

Time the Star will be on the Meridian ——— ——— 14. 18 Afternoon
that is, at 18 m. past 2 in the Morning.

To find what Star will come upon the Meridian, at any given Time.
Rule, Add the Time from Noon, to the Right Ascension of the Sun, the Sum will be the Right Ascension of the Star required to be known, with which enter the Table of the Star's Right Ascension, and find what Star's Right Ascension agree with, or comes the nearest to it, and that is the Star required.

Example 1st, I would know what Star would be on the Meridian, about Eight at Night, on the 7th of *April.*   h. m.

Sun's Right Ascension ——— ——— ——— 01. 06
Time from Noon ———— —— ———— ——— 08. 00

Right Asc. of the req. Star, the nearest to which 09. 06 is *Hydra's Heart*

Example 2d, I would know what Star would be on the Meridian, at ¼ past 2 in the Morning, on the 26th of *June.*   h. m.

Sun's Right Ascension ———— —— ——— 06. 22
Time from Noon ———— ——— —— 14. 15

Rt. Asc. of req. Star, nearest to which in the Tables 20. 37 is *Swan's Tail.*

A

A TABLE of the Latitudes and Longitudes of Places accounting the Longitudes from the Meridian of LONDON.

Places Names.	Latitude		Longitude		Places Names.	Latitude		Longitude	
The Coast of England.	D.	M.	D.	M.				D.	M.
Berwick	55	48	01	45 W	Aberdeen	57	24 N	01	40 W
Newcastle	55	12	01	30 W	Dundee	56	28 N	02	40 W
Stockton	54	33	01	25 W	Edinburgh	55	58 N	02	59 W
Spurn	53	45	00	13 E					
Yarmouth	52	40	01	40 E	**The Coast of Ireland.**				
London	51	32	00	00					
North Foreland	51	25	01	24 E	Dublin	53	12	06	56
Beachy Head	50	46	00	25 E	Wexford	52	13	07	27
Dunnose	50	38	01	23	Waterford	52	09	08	40
Portland	50	30	02	44	Cork	51	49	09	30
Start	50	07	03	47	Cape Clear	51	17	11	10
Lizard	49	57	05	14	Limeric	52	23	09	35
Land's End	50	06	06	00	Galway	53	07	09	40
St. Mary Scilly	49	57	06	10	Slime Head	53	20	11	15
Hartland Point	51	06	04	35	Londonderry	55	00	07	50
Lundy Isle	51	20	04	40	Bellfast	54	39	06	30
Bristol	51	33	04	35					
St. David's Head	51	50	05	22	**The Coast of Holland and Flanders.**				
Barsey Isle	52	44	05	00					
Holy-head	53	23	04	50	Scaw	57	30	10	20
Liverpool	53	20	03	00	Helighland	54	24	08	35
Whitehaven	54	25	03	30	Hambrough	53	41	10	35
Carlisle	54	47	03	05	Embden	53	05	07	35
					The Fly	53	15	05	30
The Coast of Scotland.					The Texel	53	15	05	10
					Amsterdam	52	23	05	04
Glasgow	55	52	04	05	Rotterdam	51	55	04	30
N. Part of Sky Isle	57	45	05	45	The Brill	52	00	04	00
N. Part of Lewis Isle	58	20	07	20	Sluice	51	14	03	43
St. Kildry	57	52	09	45	Calais	50	58	01	54
Farra Head	58	34	05	10					
Isles of Orkney	59	10	03	22	**The Coast of France and Portugal.**				
Shetland S. Point	60	04	02	00	Diep	49	56 N	01	09 E
Buchaness	57	45	01	18	Cape de Hague	49	47 N	02	00 W
					Gaskets	49	50 N	02	20 W
					Guernsey	49	33 N	02	20 W

A TABLE of Latitudes and Longitudes.

Places Names.	Latitude D. M.	Longitude D. M.	Places Names.	Latitude D. M.	Longitude D. M.
The Coast of *France* and *Portugal*.			Ancona	43 40	14 26
Morliax	48 33	03 49	Venice	45 25	12 10
Ushant	48 30	05 02	Lepanto	38 10	22 52
Breast	48 23	04 25	Cape Matapan	36 33	22 41
Penmark	47 48	04 24	Cape St. Angelo	36 32	23 56
Bell-Isle	47 20	03 16	Athens	37 58	24 05
Nantz	47 14	01 39	Cape Martelo S. part of Negropont	38 07	25 03
Island Dieu	46 34	02 13	Cape Monte Sancto	40 26	25 02
Isle of Ree	46 10	01 30	Gallipoly	40 33	27 20
Rochel	46 10	01 11	Constantinople	40 59	28 56
Bourdeaux	44 50	00 38	Smyrna	38 28	27 25
Bilboa	43 29	02 58	Ephesus	38 01	27 53
Cape Ortegal	44 04	07 48	Antiocheta	36 30	32 46
Cape Finister	43 12	09 40	Scanderoon	36 34	36 30
Oporto	41 10	09 25	Tripoli	34 38	36 15
Burlings	39 35	09 24	Alexandria	31 10	30 19
Rock of Lisbon	38 54	09 50	Cape Rufato	32 48	21 25
Cape St. Vincent	36 53	09 06	Cape Miferato	32 21	16 17
Cadiz	36 33	06 01	Tripoly	32 54	13 10
Cape Trefalgar	36 10	06 01	Cape Bona	37 03	11 04
(North Latitude / West Longitude)			Bona	37 02	08 19
			Algier	37 05	03 16
On the Main Continent within the *Straits*			Cape de Tres Forcas	35 30	02 04 W
			Tetuan	35 27	05 06 W
Gibralter	36 12	04 53 W	Ceuta	35 54	04 45 W
Cape de Gat	36 40	01 40 W	Tangier	35 42	05 22 W
Cape Paul	38 15	00 05	*(North Latitude / East Longitude)*		
Cape Martin	38 46	00 40			
Barcelona	41 26	02 18	**Islands within the *Straits*.**		
Marseilles	43 18	05 27			
Toulon	43 07	06 02	Alboran	35 54	02 29 W
Genoa	44 25	08 43	Formentaria	38 33	01 55
Leghorn	43 28	10 35	Yvica	38 50	01 40
Rome	41 54	12 45	Majorca City	39 30	03 03
Naples	40 51	14 46	Port Mahon	39 42	04 12
Cape Spartuventuro	37 55	16 55	Gallita	37 41	08 44
Cape Collone	38 56	18 05	S. end of Sardinia	38 46	09 12
Gallipoli	39 56	18 43	N. end of Corsica	42 56	09 50
Cape St. Mary	39 45	19 00	*(North Latitude / East Longitude)*		
(North Latitude / East Longitude)					

A TABLE of Latitudes and Longitudes.

Places Names.	Latitude D.	M.	Longitude D.	M.
Islands within the *Straits.*				
Gorgona	43	34	09	38
Captia	43	03	14	54
Lilboa	42	45	11	00
Messina	38	07	16	20
Maritimo	38	12	17	09
Cape Passaro	36	38	15	40
Malta	35	53	14	32
Corfu	39	42	20	06
Zephalonia	38	15	21	00
Zant	37	46	21	14
Morea	36	52	21	32
Lemnos	39	59	25	37
Scio	38	22	26	12
C. St. John West-end of Candia	35	15	24	00
CapeSolomonEast end of Candia	35	00	27	08
City of Rhodes	36	42	28	05
West end of Cyprus	34	57	32	23
East-end of Cyprus	35	31	35	00

North Latitude — East Longitude

The Coast of *Barbary* and *Guiney.*

Places Names.	Latitude D.	M.	Longitude D.	M.
Cape Spartel	35	50	05	49
Sallee	33	51	06	25
Cape Cantin	32	36	09	10
Cape de Geer	30	27	0	06
Cape Bajadore	26	04	15	35
Cape Olerado	23	41	15	50
Cape Blanco	20	32	17	35
Senegal	15	28	16	25
Cape de Verde	14	43	17	20
River Gambia	13	08	15	31
Sierralion	08	36	12	57
Cape Monserado	06	05	10	02
Cape Palmas	04	13	06	45
Jaque Jaque	04	16	02	47

North Latitude — West Longitude

Places Names.	Latitude D.	M.	Longitude D.	M.
Affinee	04	15	02	17 W
Cape three Points	04	28	01	50 W
River Volta	05	55	03	25
River Formosa	07	00	07	20
Cape Formosa	04	15	06	40
New Callabar	04	42	08	33
Old Callabar	04	10	09	45
River Camaroons	03	25	10	10
River Angra	00	50	10	01
Cape Lopez	00	55	09	55
River Congou	05	40	15	25
Angola	08	57	15	56
Cape Negro	16	08	12	31
Cape St. Thomas	24	10	14	43
Cape BonaEsperance	34	07	19	35

North Latitude — South Latitude — East Longitude

The Western Islands.

Places Names.	Latitude D.	M.	Longitude D.	M.
Corvo	39	54	30	55
Flores	39	32	30	54
Fial	38	53	28	15
Pico	38	40	27	20
St. George	38	52	26	03
Tercera	38	57	25	34
St. Michael	38	06	23	36
St. Maries	36	59	23	38

North Latitude — West Longitude

The Canary Islands.

Places Names.	Latitude D.	M.	Longitude D.	M.
Ferro	27	54	17	45
Palma	28	40	17	36
Gomera	28	06	17	05
Tenariff	28	23	16	28
Madera West-end	32	44	17	26
Porto Sancto	33	12	15	54
Canaria	27	52	15	10
Forteventura	28	05	13	36
Lancerota	29	02	12	45

North Latitude — West Longitude

A TABLE of Latitudes and Longitudes.

Places Names.	Latitude D. M.	Longitude D. M.	Places Names.	Latitude D. M.	Longitude D. M.
Cape de Verde Islands.			Visegapatam	17 43	83 57
St. Vincent	17 04	24 39	Cape Palmiras	20 42	87 52
St. Lucia	17 00	24 30	Bengal	22 17	92 21
St. Nicholas	16 50	23 48	Cape Negrais	16 23	93 00
Brava	14 28	24 02	Malacca	02 12	102 10
Fuego	14 50	23 41	Siam Entrance	14 18	100 55
St. Jago	15 08	22 56	Cambodia Entrance	10 28	105 00
Isle of May	15 14	22 02	Cochin	14 05	107 56
Isle Sal	16 50	22 08	Canton	23 14	113 06
Bonavista	16 05	22 07	Amoy or Quemoy	24 35	116 50
			Lampo	29 59	120 35
			Nanquin	32 55	120 01

North Latitude — West Longitude (left) / *North Latitude — East Longitude* (right)

The Southern Islands.

Places Names.	Latitude D. M.	Longitude D. M.
St. Matthews	01 30 S	06 01 W
Ascension	07 40 S	14 25 W
St. Hellena	16 00 S	06 14 W
Fernandepo	02 40 N	10 30 E
Princes	01 40 N	09 15 E
St. Thomas	00 00	08 20 E
Annabona	02 10 S	07 27 E

Islands in the East-Indies.

Places Names.	Latitude D. M.	Longitude D. M.
Madagascar or St. Laurence { S. end	25 47	46 10
{ N end	12 10	51 05
Mayetta	13 10	45 38
Mohilla	12 05	44 23
Comero	11 40	43 50
St. Juan de Nova	16 30	42 40
Mauritius	20 10	52 55
Diego Roys	19 50	61 30
Romiras de Castelamas {	28 45	67 17
Amsterdam	38 40	72 45
St. Brandon	16 38	64 30
Diego Gratiosa	08 40	68 25
Quabella	03 53	52 36
Bassos de Chagos	06 55	68 45
Yas de Diego Rays	00 20	72 00
Maldivia { N. end	07 14	73 04
{ S. end	00 25	76 22
Malique	09 00	72 58
Sacatra	12 21	54 05
Abdeleur	12 04	53 04

South Latitude / N. Latitude — East Longitude

The Coast on the Main Continent in the East-Indies.

Places Names.	Latitude D. M.	Longitude D. M.
Cape Lagulias	34 54 S	21 20
Cape Corientes	23 40 S	36 17
Mosambique	15 04 S	41 10
River de Fugos	00 14 S	41 15
Cape Bassos	04 06	47 38
Cape Guardasoy	11 44	51 20
Cape Rosulgat	22 41	59 45
Cape Muca	23 32	59 45
Bussera	29 45	49 20
Surrat	21 10	72 25
Goa	15 31	73 50
Callicut	11 16	75 30
Cochin	09 54	75 55
Cape Camarine	07 50	77 25
Fort St. George	13 11	80 32
Dew Point	16 08	81 32

North Latitude — East Longitude

A TABLE of Latitudes and Longitudes.

Places Names.	Latitude		Longitude		Places Names.	Latitude		Longitude	
Islands in the *East-Indies*.	D.	M.	D.	M.	The Coast of *America* in the *South Sea*.	D.	M.	D.	M.
C. Gallo, in Zeloan	06	07	81	15	Cape St. Sebastians	42	45	127	55
Yas de Amber	00	00	52	30	Cape St. Lucia	23	20	111	46
Andaman	12	10	93	32	Cape Corientes	19	40	109	30
Nicobar	07	11	93	40	Aquapulco	17	05	104	18
Sumatra NW. end	05	22	94	50	Aquatulco	15	27	102	03
Verkins Island	02	22	94	07	Guatimala	14	25	101	00
Naffau Island	02	54	99	32	Panama	08	50	81	52
Bencola	03	55	104	08	Bay Bonaventura	03	24	78	06
Sumatra SE. end	05	22	105	10	Isle Gallopega	00	00	90	10
Engano	05	50	101	43	Cape del Ajugo	06	30	84	50
Selam	08	20	102	13	Lima	12	15	77	30
Princes Island	06	30	104	02	Arica	18	29	73	10
Bantam in Java	06	11	105	55	La Serena	29	00	76	22
Batavia	06	16	106	46	Juan Fernando	33	15	83	18
Java E. end	08	32	113	30	Baldivia	39	35	81	10
Straits of Sundy	06	02	105	46	Port Steven	46	50	82	36
Banca S. end	03	20	106	45	Cape Victory	52	00	83	10
Borneo S. Point	03	54	113	37	Cape Horn	57	58	79	55
Bandy Isles	04	55	127	17					

The Coast of *Brazil* from Cape *Horn* to Cape *Roque*.

Places Names.	Latitude		Longitude		Places Names.	Latitude		Longitude	
Celebes { S. end	05	10	119	07	Magellan E. end	52	00	75	05
Celebes { N. end	01	40	121	20	River Julian	48	40	74	34
Mindano W. point	06	40	119	15	Cape Blanco near River Camaroons	46	50	72	07
Borneo N. point	07	10	113	05	Buenos Ayres or River Plate	36	10	57	54
Luconia { SW. point	12	30	120	10	River Grand	31	55	52	00
Luconia { NE. point	18	35	120	05	St. Katherines	27	50	49	00
Anian { W. point	19	30	107	00	Cape Frio	23	00	42	20
Anian { E. point	19	55	109	55	Spirito Sancto	19	59	42	10
Formosa { S. point	22	00	119	56	P. Segura	16	31	40	35
Formosa { N. point	25	30	120	45	Bay Modos Sanctos	12	46	41	00
Piscadore Isles	23	30	118	35	River St. Francisco	10	50	37	50
Island Chusan	30	38	120	35					
Japan { SE. point	35	30	140	30					
Japan { SW. point	35	00	128	30					

A TABLE of Latitudes and Longitudes.

The Coast of Brazil, &c.

Places Names.	Latitude D. M.	Longitude D. M.
Cape St. Augustine	08 35 S	35 20 W
Cape Roque	05 00 S	35 47 W
Tristian de Cunha	37 05 S	13 24 W
Trinidada	20 30 S	30 00 W

Main Continent in the West-Indies.

Places Names.	Latitude (North Latitude) D. M.	Longitude (West Longitude) D. M.
R. Amazons Ent.	00 00	49 56
North Cape	02 05	49 56
Surinam	06 25	56 50
Oronoque	08 15	59 25
Cape Conquibaca	12 40	70 42
Carthagena	10 28	75 21
Scots Settlement	08 30	78 45
Nicaragua Entrance	11 25	84 15
Cape Catoche	21 10	86 10
Campeachy	19 30	92 10
La Vera Cruz	19 12	97 48
Escondido	30 20	89 30
Cape Florida	24 57	80 30

The Caribbee Islands.

Places Names.	Latitude (North Latitude) D. M.	Longitude (West Longitude) D. M.
Trinidado	10 15	60 17
Tobago W. end	11 10	59 10
Granado	11 57	60 20
Barbadoes	12 58	58 50
St. Vincent	13 12	60 12
St. Lucia	13 55	60 04
Martinico	14 43	60 54
Dominico	15 23	60 30
Marigallante	15 58	60 20
Guardalupe	16 10	61 15
Monserat	16 45	62 15
Antigua	17 05	61 45
Nevis	17 05	62 32
St. Christophers	17 13	62 40
Barbuda	17 56	60 40

Places Names.	Latitude (North Latitude) D. M.	Longitude (West Longitude) D. M.
St. Bartholomew	17 52	62 06
St. Martins	18 06	62 10
Anguilla	18 17	62 13
Virgins	18 30	63 25
St. Cruz	17 52	63 30
Bieque	18 00	63 15
Porto Rico St Johns	18 30	65 37
St. Domingo Hisp	18 25	69 30
Port Royal Jamaica	17 40	76 32
East end of Cuba	20 15	73 55
Havanna	22 40	82 55
Bay of Hondy	22 45	82 40
Cape St. Anthony	21 45	85 32

Bahama Islands.

Places Names.	Latitude (North Latitude) D. M.	Longitude (West Longitude) D. M.
Bermudas	32 25	63 40
N. point of Bahama Bank	28 00	78 35
Bahama Island	26 50	79 36
Abacco S. point	26 00	73 46
Harbour Island	25 37	76 47
Andros N. point	25 10	78 50
Providence	25 00	77 20
Illathera S. point	24 40	75 56
Cat Island	24 25	75 09
Watling Island	24 03	74 35
Rum Key	23 45	74 50
Exuma	23 22	75 55
Crooked Island N. point	22 56	74 12
Atkins Key	22 17	74 05
Meraparvouz	21 58	74 45
Atwoods Key	23 10	73 35
French Keys	22 40	73 40
Mayaguana	22 35	72 46
Hogsties	21 17	73 55

A TABLE of Latitudes and Longitudes.

Bahama Islands.

Places Names.	Latitude D. M.	Longitude D. M.
Heneago	20 52 N	73 46 W
Caicos Bank N. Point	21 50 N	71 15 W
Turks Island	21 35 N	70 08 W
Abrolho N. point	21 35 N	69 06 W
Plate Wreck	20 10 N	68 15 W

The Coast of Carolina, Virginia, Maryland, Pensilvania, New England, and Newfoundland.

Places Names.	North Latitude D. M.	West Longitude D. M.
Charles Town upon Ashly River	32 45	78 46
Cape Hatteras	35 15	74 20
Cape Henry	37 00	75 24
Cape Charles	37 16	74 16
Cape Hinlopen	38 50	74 56
Long Island	40 50	72 45
New York	40 58	73 53
Cape Cod	42 12	68 55
Boston	42 30	69 23
Cape Sable	43 50	64 58
Isle Sable	44 20	59 01
Cape Britain	46 00	58 30
Quebec	46 55	69 48
Bay of Brest	52 10	56 57
Bell Island	52 07	55 35
Cape St. John	50 15	52 48
Cape Bonavista	49 15	52 12
Trinity Bay Ent.	48 42	52 20
Conception Bay	48 20	52 08
St. John's Harbour	48 00	51 39
Bay of Bulls	47 50	51 29
Cape Race	46 40	51 52
Cape St. Mary	47 10	53 23
Placentia	47 45	53 58
Cape Roy	48 00	57 40

The Coast of Hudson's Bay and Straits

Places Names.	North Latitude D. M.	West Longitude D. M.
Buttons Isle	60 25	66 27
Cape Charles	62 10	75 35
Cape Walsingham	62 35	77 55
Mansfield Isle	61 42	80 30
Cape Jones	54 55	78 58
Ruperts River	51 30	79 26
Albany River	52 26	84 50
The Cubbs	54 10	82 40
C. Henrietta Maria	55 07	84 30
Port Nelson	57 10	93 58
Cape Churchill	59 00	95 20
Cape Southampton	61 55	86 48
Shark Point	64 30	82 55
Nottingham Isle	63 30	79 53
Q. Ann's Foreland	63 48	74 55
Resolution Isle	61 50	65 04
Cape Farewell	59 45	46 45

The Coast of Iceland, Greenland, Nova Zembla, and Northern Isles.

Places Names.	North Latitude D. M.	West Longitude D. M.
Sound Royal	66 22	14 33
Bargazar Point	66 20	16 35
Whales Back	65 27	20 33
Merchants Foreland	63 25	17 05
Halliford	64 30	34 43
Fair Foteland	66 20	26 27
Grims Island	67 15	22 34
Westmania Isles	63 30	22 24
Isles of Fero	62 06	05 00
Beerenberg, or John Main's Isle	71 45	04 30 E
Point Look-out	76 25	15 36 E
Horn Sound	76 45	13 36 E
Fair Foreland	79 20	10 52 E
Hacluits Foreland	79 55	11 00 E
Helie's Sound	78 55	21 50 E

A TABLE of Latitudes and Longitudes.

Places Names.	Latitude		Longitude		Places Names.	Latitude		Longitude	
The Coast of *Iceland, Greenland, Nova Zembla*, and Northern Isles.	D.	M.	D.	M.		D.	M.	D.	M.
Lees Foreland	78	05	23	25	Gottenburgh	57	50	12	15
Whales Head	77	18	21	30	Elsimore	56	22	12	42
Hope Island	76	18	23	45	Copenhagen	55	41	12	50
Cherry or Bear Isle	74	30	18	08	Valsterborn	55	28	13	00
Admiralty Isle	75	05	54	50	Kalmer	56	40	16	35
Fretum Borrough	70	00	61	20	Stockholm	69	20	19	30
Cape Candinose	69	05	42	35	Wybourg	50	52	29	16
Catnose	65	43	35	14	Petersburgh	59	00	30	25
Archangle Bar	64	30	40	30	Narva	59	17	28	25
Cross Island	66	31	36	33	Revel	59	25	24	51
Sweetnose	68	10	34	45	Riga	57	04	25	15
Kilduyn	69	30	31	20	Derwinda	57	15	22	06
North Cape	71	23	23	02	Koningsberg	54	43	21	35
Surroy	71	05	16	40	Dantzick	54	22	18	36
Tromsound	70	25	15	30	Wisby in Gotland	57	30	18	30
Lœfort SW. point	68	15	09	30	Bornholm	55	15	14	45
Dronton	63	55	10	15	Straelsound	54	25	13	16
Stadland	62	10	04	38	Lubeck	54	06	09	55
North Bergen	60	10	05	40	Anout	56	50	11	06
Naze of Norway	57	45	07	24	Lesou	57	05	10	30
					Scaw	57	30	10	20

(Latitude column marked *North Latitude*; Longitude column marked *East Longitude*)

The Coast in the *Sound* and *Baltick*.

Mardon	58	19 N	08	57 E
Larwick	58	54 N	09	20 E
Christiana	59	20 N	10	00 E
Maesterland	57	53 N	11	45 E

The Latitudes of any two Places being given, to find the Diffrence of Latitude between them.

Rule, If the Latitudes are both North, or both South, subtract the Lesser from the Greater, the Remainder will be the Difference of Latitude.
But

But if one Latitude be North, and the other South, then add them together, and their Sum will be the Difference of Latitude.

Example 1*st.* What is the Difference of Latitude between the *Lizard*, and *Barbadoes.*

Lizard, in Latitude ——— ———	49° 57' N.
Barbadoes, in Lattiude———— ———	12 58 N.
The Difference of Latitude ———	36 59

Example 2*d.* What is the Difference of Latitude between *Jamaica* and Cape *Bona Esperance.*

Jamaica, in Latitude ———— ———	17 40 N.
Cape *Bona Esperance*, in Latitude	34 07 S.
The Difference of Latitude ———	51 47 which Degrees

being multiplied by 60, and the odd 47 Min. 60
taken in, will give the Difference of Lat. in — 3107 Miles.

Rules for Latitude.

The Latitude sail'd from, and the Difference of Latitude being given, to find what Latitude the Ship is come into?

Case the 1*st.* When you sail from North Latitude to the Northward, or from South Latitude to the Southward, add the Difference of Latitude (it being first brought into Degrees, if need be, by dividing it by 60) to the Latitude sail'd from, the Sum will be the Latitude you are come into, of the same Name with the Latitude sail'd from.

Example 1*st.* A Ship from a Place in the Latitude 14 10 N. sails to the Northward till she makes her Difference of Latitude 04 21: What Latitude is she come into?

Latitude sail'd from ———————	14 10 N.
Difference of Latitude ——— ———	04 21
Latitude come into ——— ———	18 31 N.

Example 2*d.* A Ship from Latitude 29 17 S. sails to the Southward, till she makes her Difference of Latitude 374 Miles: What Latitude is she come into?

Latitude sail'd from ———————	29 17 S.
Diff. of Lat. 374 Miles, divided by 60 makes	06 14
Latitude come into ———————	35 31 S.

P   *Case*

Case the 2d. When you sail from North Latitude to the Southward, or from South Latitude to the Northward, subtract the Difference of Latitude, if least, from the Latitude sail'd from, the Remainder is the Latitude come into, of the same Name with the Latitude you sail'd from.

But if the Difference of Latitude be biggest, then subtract the Latitude from the Difference of Latitude, the Remainder will be the Latitude come into, of a contrary Name to the Latitude you sail'd from.

Example 1st. A Ship from Latitude 49 14 N. sails to the Southward, till her Difference of Latitude be 521 Miles: What Latitude is she come into?

Latitude sail'd from ———————————— 49 14 N.
Diff. of Lat. 521 Miles, divided by 60, makes 08 41
                                                —————
Latitude come into ———————————— 40 33 N.

Example 2d. A Ship from Latitude 4 18 S. sails to the Northward, till her Difference of Latitude be 10 24: What Latitude is she come into?

Latitude sail'd from ———————— 04 18 S.
Difference of Latitude ————————— 10 24
                                       —————
Latitude come into ————————— 06 06 N.

Rules for Longitude.

The Longitudes of any two Places being given, to find the Difference of Longitude between them..

Rule. If the Longitudes are both East, or both West, subtract the lesser from the greater, the Remainder will be the Difference of Longitude.

But if one Longitude be East, and the other West, then add them together, and their Sum (if less than 180 Degrees) will be the Difference or Longitude; but if it be more than 180 Degrees, then subtract it from 360.00, and the Remainder will be the Difference of Longitude.

Example 1st. What is the Difference of Longitude between Cape Finister and *Antigua?*

Case

Cape *Finister*, in Longitude ———— 09 40 W.
Antigua, in Longitude ———— 61 45 W.

The Difference of Longitude ———— 52 05

Example 2d. What is the Difference of Longitude between *Barcelona* and the Rock of *Lisbon?*

Barcelona, in Longitude ———— 02 18 E.
Rock of *Lisbon*, in Longitude———— 09 50 W.

The Difference of Longitude———— 12 08

Example 3d. What is the Difference of Longitude between the S.E. Point of *Japan*, and the Island of St. *Christophers.*

SE. Point of *Japan*, in Longitude———— 140 30 E.
St. *Christopher's*, in Longitude ———— 62 40 W.

Exceeds 180 00———— 203 10
Subtract it from———— 360 00

Remains the Difference of Longitude ———— 156 50

The Longitude fail'd from, and the Difference of Longitude being given, to find what Longitude the Ship is come into?

Case 1st. When you sail from East Longitude to the Eastward, or from West Longitude to the Westward, add the Difference of Longitnde to the Longitude fail'd from, the Sum (if less than 180 Degrees) is the Longitude come into, of the same Name with the Longitude you fail'd from.

But if the Sum should be more than 180 Degrees, then subtract it from 360.00, and the Remainder will be the Longitude you are come into, of a contrary Name to the Longitude you fail'd from.

Example 1st. A Ship from Longitude of 48 21 E. fails to the Eastward, till she makes her Difference of Longitude 287 Miles. What Longitude is she come into?

Longitude fail'd from ———— 48 21 E.
Difference of Longitude 287 Miles, or 04 47

Longitude come into———— 53 08 E.

Example 2d. A Ship from the Longitude of 178 47 West, fails to the Westward till her Difference of Longitude be 12 17: What Longitude is she come into?

Longi-

Longitude fail'd from —————————— 178 47 W.
Difference of Longitude —————————— 12 17
Exceeds 180.00 ———————— 191 04
Subtract it from ———————— 360 00
Remains the Longitude come into —— 168 56 E.

Cafe the 2d. When you fail from Eaſt Longitude to the Weſt-ward, or from Weſt Longitude to the Eaſtward, ſubtract the Difference of Longitude (if it be leaſt) from the Longitude you fail'd from, and the Remainder will be the Longitude come into, of the ſame Name with the Longitude fail'd from.

But if the Difference of Longitude be the biggeſt, then ſubtract the Longitude from the Difference of Longitude, and the Remainder will be the Longitude come into, of a contrary Name to the Longitude fail'd from.

Example 1ſt. A Ship from Longitude 98 17 Eaſt, ſails to the Weſtward till ſhe makes her Difference of Longitude 14 21 : What Longitude is ſhe come into ?

Longitude fail'd from —————————— 98 17 E.
Difference of Longitude —————————— 14 21
Longitude come into ———————— 83 56 E.

Example 2d. A Ship from Longitude 44 21 Weſt, ſails to the Eaſt-ward till her Difference of Longitude be 81 42 : What Longitude is ſhe come into ?

Longitude fail'd from ————————— 44 21 W.
Difference of Longitude ————————— 81 42
Longitude come into ————————— 37 21 E.

Here follows a Table of Meridional Parts, to every Degree and Minute of Latitude

M

M	0 d	1 d	2 d	3 d	4 d	5 d	6 d	7 d	8 d	9 d	10 d	11 d	12 d	13 d	M
0	0	60	120	180	240	300	361	421	482	542	603	664	725	787	0
1	1	61	121	181	241	301	362	422	483	543	604	665	726	788	1
2	2	62	122	182	242	302	363	423	484	544	605	666	727	789	2
3	3	63	123	183	243	303	364	424	485	545	606	667	728	790	3
4	4	64	124	184	244	304	365	425	486	546	607	668	729	791	4
5	5	65	125	185	245	305	366	426	487	547	608	669	730	792	5
6	6	66	126	186	246	306	367	427	488	548	609	670	731	793	6
7	7	67	127	187	247	307	368	428	489	549	610	671	732	794	7
8	8	68	128	188	248	308	369	429	490	550	611	672	733	795	8
9	9	69	129	189	249	309	370	430	491	551	612	673	735	796	9
10	10	70	130	190	250	310	371	431	492	552	613	674	736	797	10
11	11	71	131	191	251	311	372	432	493	553	614	675	737	798	11
12	12	72	132	192	252	312	373	433	494	554	615	676	738	799	12
13	13	73	133	193	253	313	374	434	495	555	616	677	739	800	13
14	14	74	134	194	254	314	375	435	496	556	617	678	740	801	14
15	15	75	135	195	255	315	376	436	497	557	618	679	741	802	15
16	16	76	136	196	256	316	377	437	498	558	619	680	742	803	16
17	17	77	137	197	257	317	378	438	499	559	620	681	743	804	17
18	18	78	138	198	258	318	379	439	500	560	621	682	744	805	18
19	19	79	139	199	259	319	380	440	501	561	622	683	745	806	19
20	20	80	140	200	260	320	381	441	502	562	623	684	746	807	20
21	21	81	141	201	261	321	382	442	503	563	624	685	747	808	21
22	22	82	142	202	262	322	383	443	504	564	625	686	748	809	22
23	23	83	143	203	263	323	384	444	505	566	626	688	749	810	23
24	24	84	144	204	264	324	385	445	506	567	627	689	750	811	24
25	25	85	145	205	265	325	386	446	507	568	628	690	751	812	25
26	26	86	146	206	266	326	387	447	508	569	629	691	752	813	26
27	27	87	147	207	267	327	388	448	509	570	630	692	753	814	27
28	28	88	148	208	268	328	389	449	510	571	632	693	754	816	28
29	29	89	149	209	269	329	390	450	511	572	633	694	755	817	29
30	30	90	150	210	270	330	391	451	512	573	634	695	756	818	30
31	31	91	151	211	271	332	392	452	513	574	635	696	757	819	31
32	32	92	152	212	272	333	393	453	514	575	636	697	758	820	32
33	33	93	153	213	273	334	394	454	515	576	637	698	759	821	33
34	34	94	154	214	274	335	395	455	516	577	638	699	760	822	34
35	35	95	155	215	275	336	396	456	517	578	639	700	761	823	35
36	36	96	156	216	276	337	397	457	518	579	640	701	762	824	36
37	37	97	157	217	277	338	398	458	519	580	641	702	763	825	37
38	38	98	158	218	278	339	399	459	520	581	642	703	764	826	38
39	39	99	159	219	279	340	400	460	521	582	643	704	765	827	39
40	40	100	160	220	280	341	401	461	522	583	644	705	766	828	40
41	41	101	161	221	281	342	402	462	523	584	645	706	767	829	41
42	42	102	162	222	282	343	403	463	524	585	646	707	768	830	42
43	43	103	163	223	283	344	404	464	525	586	647	708	769	831	43
44	44	104	164	224	284	345	405	465	526	587	648	709	770	832	44
45	45	105	165	225	285	346	406	466	527	588	649	710	771	833	45
46	46	106	166	226	286	347	407	467	528	589	650	711	772	834	46
47	47	107	167	227	287	348	408	468	529	590	651	712	773	835	47
48	48	108	168	228	288	349	409	469	530	591	652	713	774	836	48
49	49	109	169	229	289	350	410	470	531	592	653	714	775	837	49
50	50	110	170	230	290	351	411	471	532	593	654	715	776	838	50
51	51	111	171	231	291	352	412	472	533	594	655	716	777	839	51
52	52	112	172	232	292	353	413	473	534	595	656	717	779	840	52
53	53	113	173	233	293	354	414	474	535	596	657	718	780	841	53
54	54	114	174	234	294	355	415	475	536	597	658	719	781	842	54
55	55	115	175	235	295	356	416	476	537	598	659	720	782	843	55
56	56	116	176	236	296	357	417	477	538	599	660	721	783	844	56
57	57	117	177	237	297	358	418	478	539	600	661	722	784	845	57
58	58	118	178	238	298	359	419	479	540	601	662	723	785	846	58
59	59	119	179	239	299	360	420	480	541	602	663	724	786	847	59

M	14 d	15 d	16 d	17 d	18 d	19 d	20 d	21 d	22 d	23 d	24 d	25 d	26 d	27 d	M
0	848	910	973	1035	1098	1161	1225	1289	1354	1419	1484	1550	1616	1684	0
1	849	911	974	36	99	63	26	90	55	20	85	51	18	85	1
2	85	913	975	37	1300	64	27	91	56	21	86	52	19	86	2
3	852	914	9,6	38	01	65	28	92	57	22	87	53	20	87	3
4	853	915	977	39	02	66	29	93	58	23	88	54	21	88	4
5	854	916	978	41	03	67	30	95	59	24	90	56	22	89	5
6	855	917	979	42	05	68	32	96	60	25	91	57	23	90	6
7	856	918	980	43	06	69	33	97	61	26	92	58	24	91	7
8	857	919	981	44	07	70	34	98	62	27	93	59	25	93	8
9	858	920	982	45	08	71	35	99	63	28	94	60	26	94	9
10	859	921	983	1046	1109	1172	1236	1300	1364	1429	1495	1561	1628	1695	10
11	860	922	984	47	10	73	37	01	66	31	96	62	29	96	11
12	861	923	985	48	11	74	38	02	67	32	97	63	30	97	12
13	862	924	986	49	12	75	39	03	68	33	98	64	31	98	13
14	863	925	987	50	13	76	40	04	69	34	99	65	32	99	14
15	864	926	988	51	14	77	41	05	70	35	1500	67	33	1700	15
16	865	927	989	52	15	78	42	06	71	36	02	68	34	01	16
17	866	928	990	53	16	79	43	07	72	37	03	69	35	03	17
18	867	929	991	54	17	81	44	08	73	38	04	70	37	04	18
19	868	930	992	55	18	82	45	10	74	39	05	71	38	05	19
20	869	931	994	1056	119	1183	1246	1311	1375	1440	1506	1572	1639	1706	20
21	870	932	995	57	20	84	48	12	76	41	07	73	40	07	21
22	871	933	996	58	21	85	49	13	77	43	08	74	41	08	22
23	872	934	997	59	22	86	50	14	79	44	09	75	42	09	23
24	873	935	998	60	23	87	51	15	80	45	10	77	43	10	24
25	874	936	999	61	25	88	52	16	81	46	11	78	44	12	25
26	875	937	1000	63	26	89	53	17	82	47	13	79	45	13	26
27	876	938	1001	64	27	90	54	18	83	48	14	80	47	14	27
28	877	939	1002	65	28	91	55	19	84	49	15	81	48	15	28
29	878	941	1003	66	29	92	56	20	85	50	16	82	49	16	29
30	879	942	1004	1067	1130	1193	1257	1321	1386	1451	1517	1583	1650	1717	30
31	880	943	05	68	31	94	58	22	87	52	18	84	51	18	31
32	881	944	06	69	32	95	59	24	88	53	19	85	52	20	32
33	883	945	07	70	33	96	60	25	89	55	20	86	53	21	33
34	884	946	08	71	34	97	61	26	90	56	21	88	54	22	34
35	885	947	09	72	35	99	62	27	92	57	22	89	56	23	35
36	886	948	10	73	36	1200	64	28	93	58	24	90	57	24	36
37	887	949	11	74	37	01	65	29	94	59	25	91	58	25	37
38	888	950	12	75	38	02	66	30	95	60	26	91	59	26	38
39	889	951	13	76	39	03	67	31	96	61	27	93	60	27	39
40	890	952	1014	1077	1140	1204	1268	1332	1397	1462	1528	1594	1661	1729	40
41	891	953	15	78	41	05	69	33	98	63	29	95	62	30	41
42	892	954	16	79	42	06	70	34	99	64	30	96	63	31	42
43	893	955	17	80	44	07	71	35	1400	65	31	98	64	32	43
44	894	956	19	81	45	08	72	36	01	67	32	99	66	33	44
45	895	957	20	82	46	09	73	38	02	68	33	1600	67	34	45
46	896	958	21	83	47	10	74	39	03	69	35	01	68	35	46
47	897	959	22	85	48	11	75	40	05	70	36	02	69	36	47
48	898	960	23	86	49	12	76	41	06	71	37	03	70	38	48
49	899	961	24	8.	50	13	77	42	07	72	38	04	71	39	49
50	900	962	1025	1088	1151	1214	1278	1343	1408	1473	1539	1605	1672	1740	50
51	901	963	26	89	5	16	80	44	09	74	40	06	73	41	51
52	902	964	27	90	53	17	81	45	10	75	41	08	75	42	52
53	903	965	28	91	54	18	82	46	11	76	41	09	76	43	53
54	904	966	29	92	55	19	83	47	12	77	43	10	77	44	54
55	905	968	30	93	56	20	84	48	13	79	44	11	78	45	55
56	906	969	31	94	57	21	85	49	14	80	46	12	79	47	56
57	907	970	32	95	58	22	86	50	15	81	47	13	80	48	57
58	908	971	33	96	59	23	87	52	16	82	48	14	81	49	58
59	909	972	34	97	6	24	88	53	18	83	49	15	82	50	59

M	28 d	29 d	30 d	31 d	32 d	33 d	34 d	35 d	36 d	37 d	38 d	39 d	40 d	41 d	M
0	1751	1819	1888	1958	2028	2100	2171	2244	2318	2393	2468	2545	2623	2702	0
1	52	21	90	59	30	01	73	45	19	94	70	46	24	03	1
2	53	22	91	60	31	02	74	47	20	95	71	48	25	04	2
3	55	23	92	62	32	03	75	48	22	96	72	49	27	06	3
4	56	24	93	63	33	04	76	49	23	98	73	50	28	07	4
5	57	25	94	64	34	05	78	50	24	99	75	51	29	09	5
6	58	26	95	65	35	07	79	52	25	2400	76	53	31	10	6
7	59	27	96	66	37	08	80	53	27	01	77	54	32	11	7
8	60	29	98	67	38	09	81	54	28	03	78	55	33	12	8
9	61	30	99	69	39	10	82	55	29	04	80	57	34	14	9
10	1762	1831	1900	1970	2040	2111	2184	2256	2330	2405	2481	2558	2636	2715	10
11	64	32	01	71	41	13	85	58	32	06	82	59	37	16	11
12	65	33	02	72	43	14	86	59	33	08	84	60	38	18	12
13	66	34	03	73	44	15	87	60	34	09	85	62	40	19	13
14	67	35	05	74	45	16	88	61	35	10	86	63	41	20	14
15	68	37	06	76	46	17	90	63	37	11	87	64	42	22	15
16	69	38	07	77	47	19	91	64	38	13	89	66	44	23	16
17	70	39	08	78	48	20	92	65	39	14	90	67	45	24	17
18	72	40	09	79	50	21	93	66	40	15	91	68	46	26	18
19	73	41	10	85	51	22	94	68	42	16	92	69	48	27	19
20	1774	1842	1911	1981	2052	2123	2196	2269	2343	2418	2494	2571	2649	2728	20
21	75	43	13	83	53	25	97	70	44	19	95	72	50	29	21
22	76	45	14	84	54	26	98	71	45	20	96	73	51	31	22
23	77	46	15	85	56	27	99	72	46	21	98	75	53	32	23
24	78	47	16	86	57	28	2200	74	48	23	99	76	54	33	24
25	80	48	17	87	58	29	02	75	49	24	2500	77	55	35	25
26	81	49	18	88	59	31	03	76	50	25	01	78	57	36	26
27	82	50	20	90	60	32	04	77	51	27	03	80	58	37	27
28	83	52	21	91	61	33	05	79	53	28	04	81	59	39	28
29	84	53	22	92	63	34	07	80	54	29	05	8?	61	40	29
30	1785	1854	1923	993	2064	2135	2208	2281	2355	2430	2506	2584	2662	2742	30
31	86	55	24	94	65	37	09	82	56	32	08	85	63	43	31
32	87	55	25	95	66	38	10	83	58	33	09	86	65	44	32
33	89	57	27	97	67	39	11	85	59	34	10	88	66	46	33
34	90	58	28	98	69	40	13	86	60	35	12	8?	67	47	34
35	91	60	29	99	70	41	14	87	61	37	13	90	69	48	35
36	92	61	30	2000	71	43	15	88	63	38	14	91	70	50	36
37	93	62	31	01	72	44	16	90	64	39	15	93	71	51	37
38	94	63	32	02	73	45	17	91	65	40	17	94	73	52	38
39	95	64	34	04	75	46	19	92	66	42	18	95	74	54	39
40	1797	1865	1935	2005	2076	2147	2220	2293	2368	2443	2519	2597	2675	2755	40
41	98	66	36	06	77	49	21	95	69	44	21	98	76	56	41
42	99	68	37	07	78	50	22	96	70	45	22	99	78	58	42
43	1800	69	38	08	79	51	24	97	71	47	23	2601	79	59	43
44	01	70	39	10	80	52	25	98	73	48	24	02	80	60	44
45	02	71	41	11	82	53	26	99	74	49	26	03	81	62	45
46	03	72	42	12	83	55	27	2301	75	51	27	04	82	63	46
47	05	73	43	13	84	56	28	02	76	52	28	05	84	64	47
48	06	75	44	14	85	57	30	03	78	53	30	07	86	66	48
49	07	76	45	15	86	58	31	04	79	54	31	08	87	67	49
50	1808	1877	1946	2017	2088	2159	2232	2306	2380	2456	2532	2610	2688	2768	50
51	09	78	48	18	89	61	33	07	81	57	33	11	90	70	51
52	10	79	49	19	90	62	35	08	82	58	35	12	91	71	52
53	11	80	50	20	91	63	36	09	84	59	36	14	92	72	53
54	13	81	51	21	92	64	37	11	85	61	37	15	94	74	54
55	14	83	52	22	94	65	38	12	86	62	38	16	95	75	55
56	15	84	53	24	95	67	39	13	88	63	40	17	96	76	56
57	16	85	55	25	96	68	41	14	89	64	41	19	98	78	57
58	17	86	56	26	97	69	42	16	90	66	42	20	99	79	58
59	18	87	57	27	98	70	43	17	91	67	44	21	2700	80	59

M	42 d	43 d	44 d	45 d	46 d	47 d	48 d	49 d	50 d	51 d	52 d	53 d	54 d	55 d	M
0	782	2863	2946	3030	3110	3203	3292	3382	3474	3569	3665	3764	3865	3568	c
1	83	64	47	31	17	04	93	84	76	70	67	65	66	70	1
2	84	66	49	33	18	06	95	85	78	72	68	67	68	71	2
3	86	67	50	34	20	07	96	87	79	74	70	69	70	73	3
4	87	69	51	36	21	09	98	88	81	75	72	70	71	75	4
5	88	70	53	37	23	10	99	90	82	77	73	72	73	77	5
6	90	71	54	38	24	12	3301	91	84	78	75	74	75	78	6
7	91	73	56	40	26	13	02	93	85	80	77	75	77	80	7
8	92	74	57	41	27	14	03	94	87	82	78	77	78	82	8
9	94	75	58	43	29	16	05	96	88	83	80	79	80	84	9
10	2795	2877	2960	3044	3130	3217	3306	3397	3490	3585	3681	3780	3882	3985	10
11	97	78	61	46	31	19	08	99	92	86	83	82	83	87	11
12	98	80	63	47	33	20	09	3400	93	88	85	84	85	89	12
13	99	81	64	48	34	22	11	02	95	90	86	85	87	91	13
14	2801	82	65	50	36	23	12	03	96	91	88	87	89	92	14
15	02	84	67	51	37	25	14	05	98	93	90	89	90	94	15
16	03	85	68	53	39	27	16	07	99	94	91	90	92	96	16
17	05	86	70	54	40	28	17	08	3501	96	93	92	94	98	17
18	06	88	71	55	42	29	19	10	03	98	95	94	95	99	18
19	07	89	72	57	43	31	20	11	04	99	96	95	97	4001	19
20	2809	2891	2974	3058	3144	3232	3322	3413	3506	3601	3698	3797	3899	4003	20
21	10	92	75	60	46	34	23	14	07	02	99	99	3901	05	21
22	11	93	76	61	47	35	25	16	09	04	3701	3800	02	06	22
23	13	95	78	63	49	37	26	17	10	06	03	02	04	08	23
24	14	96	79	64	50	38	28	19	12	07	04	04	06	10	24
25	15	97	81	65	52	40	29	20	14	09	06	05	07	12	25
26	17	99	82	67	53	41	31	22	15	10	08	07	09	14	26
27	18	2900	83	68	55	42	32	23	17	12	09	09	11	15	27
28	20	01	85	70	56	44	34	25	18	14	11	11	13	17	28
29	21	03	86	71	57	45	35	27	20	15	13	12	14	19	29
30	2822	2904	2988	3073	3159	3247	3337	3428	3521	3617	3714	3814	3916	4021	30
31	24	06	89	74	60	48	38	30	23	18	16	16	18	22	31
32	25	07	91	75	62	50	40	31	25	20	17	17	19	24	32
33	26	08	92	77	63	51	41	33	26	22	19	19	21	26	33
34	28	10	93	78	65	53	43	34	28	23	21	21	23	28	34
35	29	11	95	80	66	54	44	36	29	25	22	22	25	29	35
36	30	13	96	81	68	56	46	37	31	26	24	24	26	31	36
37	32	14	98	83	69	57	47	39	32	28	26	26	28	33	37
38	33	15	99	84	71	59	49	40	34	30	27	27	30	35	38
39	34	17	3000	85	72	60	50	42	36	31	29	29	32	37	39
40	2836	2918	3002	3087	3173	3262	3352	3443	3537	3633	3731	3831	3933	4038	40
41	37	19	03	88	75	63	53	45	39	34	32	32	35	40	41
42	39	21	05	90	76	65	55	47	40	36	34	34	37	42	42
43	40	22	06	91	78	66	56	48	42	38	36	36	38	44	43
44	41	24	07	93	79	68	58	50	43	39	37	38	40	45	44
45	43	25	09	94	81	69	59	51	45	41	39	39	42	47	45
46	44	27	10	95	82	71	61	53	47	43	41	41	44	49	46
47	45	28	12	97	84	72	62	54	48	44	42	43	44	51	47
48	47	29	13	98	85	74	64	56	50	46	44	43	45	52	48
49	48	31	14	3100	87	75	65	57	51	47	46	44	49	54	49
50	2849	2932	3016	3101	3188	3277	3367	3459	3553	3649	3747	3848	3951	4056	50
51	51	33	17	03	90	78	68	60	55	51	49	49	52	58	51
52	52	35	19	04	91	80	70	62	56	52	50	51	54	60	52
53	54	36	20	05	92	81	71	64	58	54	52	53	56	6?	53
54	55	37	21	07	94	83	73	65	59	55	54	55	58	63	54
54	56	39	23	08	95	84	74	67	60	57	55	56	59	65	55
56	58	40	24	10	97	86	76	68	62	59	57	58	61	67	56
57	59	42	26	11	98	87	78	70	64	62	59	60	63	69	57
58	60	43	27	13	3200	89	79	71	65	62	60	61	64	70	58
59	62	44	28	14	01	90	81	73	67	64	62	62	66	72	59

M	56 d	57 d	58 d	59 d	60 d	61 d	62 d	63 d	64 d	65 d	66 d	67 d	68 d	69 d	M
0	4074	4183	4294	4409	4527	4649	4775	+905	5039	5179	5324	5474	5631	5795	0
1	76	84	96	11	29	51	77	07	42	81	26	77	33	97	1
2	77	86	98	13	31	53	7.	09	44	84	28	79	36	5800	2
3	79	88	4300	15	33	55	81	12	46	86	31	82	39	03	3
4	81	90	02	17	35	57	84	14	49	88	33	84	41	06	4
5	83	92	04	19	37	60	86	16	51	91	36	87	44	09	5
6	85	94	06	21	39	62	88	18	53	93	38	89	47	11	6
7	86	95	08	23	41	64	90	20	55	95	41	92	50	14	7
8	88	97	09	25	43	66	91	23	58	98	43	95	52	17	8
9	90	99	11	27	45	68	94	25	60	5200	46	97	55	20	9
10	4092	4201	4313	4429	4547	4670	4796	4927	5062	5203	5348	5500	5658	5823	10
11	94	03	15	31	49	72	98	29	65	05	51	02	60	25	11
12	95	05	17	33	51	74	4801	31	67	07	53	05	63	28	12
13	97	07	19	34	53	76	03	34	69	10	56	07	66	31	13
14	99	08	20	36	55	78	05	36	71	12	58	10	68	34	14
15	4101	10	23	38	57	80	07	38	74	14	61	13	71	37	15
16	03	12	25	40	59	82	09	40	76	17	63	15	74	39	16
17	04	14	27	42	6:	84	11	43	78	19	66	18	76	42	17
18	06	16	28	44	64	87	14	45	81	22	68	20	79	45	18
19	08	18	30	46	66	89	16	47	83	24	71	23	82	48	19
20	4110	4220	4332	4448	4568	4691	4818	4949	5085	5226	5373	5526	5685	5851	20
21	12	21	34	50	70	93	20	51	88	29	76	28	87	54	21
22	13	23	36	52	72	95	22	54	90	31	78	31	90	56	22
23	15	25	38	54	74	97	24	56	92	34	80	33	93	59	23
24	17	27	40	56	76	99	26	58	95	36	83	36	95	62	24
25	19	29	42	58	78	4701	29	60	97	38	85	39	98	65	25
26	21	31	44	60	80	03	31	63	99	41	88	41	5701	68	26
27	22	32	46	62	82	05	33	65	5102	43	90	44	04	71	27
28	24	34	47	64	84	07	35	67	04	46	93	46	06	74	28
29	26	36	49	66	86	10	37	69	06	48	95	49	09	76	29
30	4128	4238	4351	4468	4588	4712	4839	4972	5108	5250	5398	5552	5712	5879	30
31	30	40	53	70	90	14	42	74	11	53	5401	54	15	82	31
32	32	42	55	72	92	16	44	76	13	55	03	57	17	85	32
33	33	44	57	74	94	18	46	78	15	58	06	59	20	88	33
34	35	46	59	76	96	20	48	81	18	60	08	62	23	91	34
35	37	47	61	78	98	22	50	83	20	63	11	65	25	94	35
36	39	49	63	80	4600	24	52	85	22	65	13	67	28	96	36
37	41	51	65	82	02	26	55	87	25	67	16	70	31	99	37
38	42	53	67	84	04	28	57	90	27	70	18	73	34	5902	38
39	44	55	69	86	06	31	59	92	29	72	21	75	36	05	39
40	4146	4257	4370	4488	4608	4733	4861	4994	5132	5275	5423	5578	5739	5908	40
41	48	59	72	90	10	35	63	96	34	77	26	80	42	11	41
42	50	60	74	92	12	37	65	99	36	80	28	83	45	14	42
43	52	62	76	94	14	39	68	5001	39	82	31	86	47	17	43
44	53	64	78	95	16	41	70	03	41	84	33	88	50	19	44
45	55	66	80	97	18	43	72	05	43	87	36	91	53	22	45
46	57	68	82	99	20	45	74	08	46	89	38	94	56	25	46
47	59	70	84	4501	23	47	76	10	48	92	41	96	58	28	47
48	61	72	86	03	25	50	79	12	51	94	43	59	61	31	48
49	62	74	88	05	27	52	81	14	53	97	46	5602	64	34	49
50	4164	4275	4390	4507	4629	4754	4883	5017	5155	5299	5448	5604	5767	5937	50
51	66	77	92	09	31	56	85	19	58	5301	51	07	70	40	51
52	68	79	94	11	33	58	87	21	60	04	54	10	72	43	52
53	70	81	96	13	35	60	90	23	62	06	56	12	75	46	53
54	72	83	98	15	37	62	92	25	65	09	59	15	78	48	54
55	73	85	99	17	39	64	94	28	67	11	61	17	81	51	55
56	75	87	+401	19	41	66	96	30	69	14	64	20	83	54	56
57	77	89	03	21	43	69	98	33	72	16	66	23	86	57	57
58	79	91	05	23	45	71	+901	35	74	19	69	25	89	60	58
59	80	92	07	25	47	73	03	37	76	21	71	28	92	63	59

M	70 d	71 d	72 d	73 d	74 d	75 d	76 d	77 d	78 d	79 d	80 d	81 d	82 d	83 d	M
0	5906	5146	5335	6534	6746	6970	7210	7467	7745	8046	·375	8739	9145	9606	0
1	69	49	38	38	49	74	14	72	49	51	81	45	53	14	1
2	72	52	41	41	53	78	18	76	54	56	87	52	60	22	2
3	75	55	45	45	57	82	22	81	59	61	93	58	67	31	3
4	78	58	48	49	60	86	27	85	64	67	98	65	74	39	4
5	81	61	51	52	64	90	31	90	69	72	3404	71	82	47	5
6	84	64	54	55	68	94	35	54	74	77	10	78	89	55	6
7	85	67	58	58	71	97	39	98	78	83	16	84	96	64	7
8	89	70	61	62	75	7001	43	7503	83	88	22	91	9203	72	8
9	92	73	64	65	79	05	47	07	88	93	27	97	11	80	9
10	5995	5177	5367	6569	5782	7009	7252	7512	7793	8099	5433	8804	9218	9689	10
11	98	80	71	72	86	13	56	16	98	8104	39	10	25	97	11
12	6001	83	74	76	90	17	60	21	7803	09	45	17	33	9706	12
13	04	86	77	79	93	21	64	25	08	15	51	23	40	14	13
14	07	89	80	83	97	25	68	30	13	20	57	30	48	23	14
15	10	92	84	85	5801	29	73	35	17	25	63	36	55	31	15
16	13	95	87	90	04	33	77	39	22	31	69	43	62	40	16
17	16	98	90	93	08	37	81	44	27	36	74	49	70	48	17
18	19	6201	94	9?	12	41	85	48	32	41	80	56	77	57	18
19	22	05	97	6600	15	45	89	53	37	47	86	63	85	65	19
20	6025	6208	5400	6603	·819	7048	7294	7557	7842	8152	8492	8869	9291	9774	20
21	28	11	03	07	23	52	98	62	47	58	98	76	9300	83	21
22	31	14	07	10	26	56	7302	65	52	63	8504	83	07	91	22
23	34	17	10	14	30	60	06	71	57	68	10	89	15	9800	23
24	37	20	13	17	34	64	11	76	62	74	16	96	22	09	24
25	40	23	17	21	38	68	15	80	67	79	22	8903	30	17	25
26	43	26	20	24	41	72	19	85	72	85	28	09	37	26	26
27	46	30	23	28	45	76	23	89	77	90	34	16	45	35	27
28	49	33	27	31	49	80	28	94	82	96	40	23	53	44	28
29	52	36	30	35	53	84	32	99	87	8201	46	30	60	52	29
30	6055	6239	5433	6639	6856	7088	7336	7603	7892	8207	8552	8936	9368	9861	30
31	58	42	37	42	60	92	41	08	97	12	58	43	76	70	31
32	61	45	40	46	64	96	45	12	7902	18	65	50	83	79	32
33	64	49	43	49	68	7100	49	17	07	23	71	57	91	88	33
34	67	52	47	53	71	04	53	22	12	29	77	63	99	97	34
35	70	55	50	56	75	08	58	26	17	34	83	70	9407	9956	35
36	73	58	53	60	79	12	62	31	22	40	89	77	14	15	36
37	76	61	57	63	83	16	66	36	27	45	95	84	22	24	37
38	79	64	60	67	86	20	71	40	32	51	8601	91	30	33	38
39	82	68	63	70	90	24	75	45	37	56	07	98	38	42	39
40	6085	6271	5467	6674	6894	7128	7379	7650	7942	8262	8614	9005	9445	9951	40
41	88	74	70	77	98	32	84	54	48	67	20	12	53	59	41
42	91	77	73	81	6901	36	88	59	53	73	26	18	61	69	42
43	94	80	77	85	05	40	92	64	58	79	32	25	69	78	43
44	97	83	80	88	09	45	97	68	63	84	38	32	77	87	44
45	5100	87	83	92	13	49	7401	73	68	90	44	39	85	9995	45
46	03	90	87	95	17	53	06	78	73	95	51	46	93	10005	46
47	06	93	90	99	20	57	10	83	78	8301	57	53	9501	10015	47
48	09	96	94	6702	24	61	14	87	83	07	63	60	09	10024	48
49	12	99	97	06	28	65	19	92	89	12	69	67	17	10033	49
50	6115	6303	5500	6710	6932	7169	7423	7697	7994	8318	8676	9074	9525	10043	50
51	18	05	04	13	36	73	27	7702	99	24	82	81	33	10052	51
52	21	09	07	17	40	77	32	06	8004	29	88	88	41	10061	52
53	24	12	11	20	43	81	36	11	09	35	95	96	49	10071	53
54	27	15	14	24	47	85	41	16	14	41	8701	9103	57	10080	54
55	30	19	17	28	51	89	45	21	20	47	07	10	65	10089	55
56	33	22	21	31	55	94	49	25	25	52	14	17	73	10099	56
57	36	25	24	35	5?	98	54	30	30	58	20	24	81	10108	57
58	40	28	28	38	63	7202	58	35	35	64	26	31	89	10118	58
59	43	32	31	42	66	06	63	40	40	69	33	38	98	10127	59

M	84 d	85 d	86 d	87 d	88 d	89 d	M
0	10137	10765	11533	12522	13916	6300	0
1	147	776	547	541	945	357	1
2	157	788	561	561	974	416	2
3	166	799	576	580	14003	470	3
4	175	811	590	599	033	533	4
5	185	822	605	619	063	595	5
6	195	834	620	639	093	662	6
7	205	846	634	659	123	726	7
8	214	858	649	679	154	7.2	8
9	22.	869	664	699	184	858	9
10	10234	10881	11679	12719	14216	10926	10
11	244	893	694	739	247	906	11
12	254	905	709	759	279	1106?	12
13	264	917	724	780	311	135	13
14	273	929	739	801	343	213	14
15	283	941	755	821	376	285	15
16	293	953	770	842	408	366	16
17	303	965	785	863	442	445	17
18	314	978	801	884	475	526	18
19	324	990	816	906	509	605	19
20	10334	11002	11832	12927	14543	17653	20
21	344	014	848	949	578	781	21
22	354	027	863	970	613	870	22
23	364	039	879	992	648	962	23
24	374	052	895	13014	684	18056	24
25	385	064	911	036	720	153	25
26	395	077	927	059	756	252	26
27	405	089	943	081	793	355	27
28	416	102	959	104	830	461	28
29	426	115	976	126	868	570	29
30	10437	11127	11992	13149	14906	18682	30
31	447	140	12008	172	943	795	31
32	457	153	025	195	983	920	32
33	468	166	041	219	15022	1904?	33
34	478	179	058	242	062	174	34
35	489	192	075	266	102	305	35
36	500	205	092	290	143	450	36
37	510	218	109	314	184	596	37
38	521	231	126	338	226	749	38
39	532	244	143	362	268	909	39
40	10542	11257	12160	13386	15311	20076	40
41	553	270	177	411	354	253	41
42	564	284	194	437	398	439	42
43	575	297	212	461	442	635	43
44	586	310	229	486	487	843	44
45	597	324	247	511	532	21065	45
46	608	337	264	537	579	303	46
47	619	351	282	563	625	557	47
48	630	365	300	589	673	832	48
49	641	378	318	615	721	22132	49
50	10652	11392	12336	13641	15770	22459	50
51	663	406	354	668	819	22821	51
52	674	420	373	695	869	23226	52
53	685	434	391	721	920	23685	53
54	696	448	409	749	972	24215	54
55	708	462	428	776	16024	24842	55
56	719	476	447	804	078	25600	56
57	730	490	465	832	132	26598	57
58	742	504	484	860	187	27992	58
59	758	518	503	888	243	30175	59

The Use of the Table of Meridional Parts.

IN this Table the first and last Column of every Page mark'd M, beginning at 0, and ending at 59, contain the Minutes anfwering to every Degree of Latitude, the other Columns mark'd 1d, 2d, &c. contain the Meridional Parts, anfwering to the Degree of Latitude they ftand under.

So that if you would find the Meridional Parts anfwering to any Latitude, fuppofe for Example, the Latitude 51.32, look in the Column under 51d. and right againft 32 (in the Column for Minutes) you will find 20, to which prefix 36, the two Figures in the fame Column that ftands above 20 towards the Left-hand, and it makes 3620, the Meridional Parts required.

Two Latitudes being given, to find the Meridional Difference of Latitude.

Cafe 1ft, If both Latitudes be North or both South, fubtract the Meridional Parts of the Leffer, from the Meridional Parts of the Greater, the Remainder will be the Meridional Difference of Latitude.

Cafe 2d, If one Latitude be North and the other South, then add their Meridional Parts together, and the Sum will be the Meridional Difference of Latitude. Q 2 A

A TABLE of Amplitudes, from the Latitude oo deg. oo min. to the Latitude 12 deg. either North or South.

Degrees of Declination	The Degrees of Latitude																							
	1		2		3		4		5		6		7		8		9		10		11		12	
	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M
0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
1	01	00	01	00	01	00	01	00	01	00	01	00	01	00	01	00	01	00	01	01	01	01	01	01
2	02	00	02	00	02	00	02	00	02	00	02	00	02	01	02	01	02	01	02	02	02	02	02	03
3	03	00	03	00	03	00	03	00	03	00	03	01	03	01	03	01	03	02	03	03	03	03	03	04
4	04	00	04	00	04	00	04	00	04	01	04	01	04	02	04	02	04	03	04	04	04	04	04	05
5	05	0	05	00	05	00	05	00	05	01	05	01	05	02	05	0	05	03	05	05	05	05	05	07
6	06	00	06	00	06	00	06	01	06	01	06	02	06	02	06	03	06	04	06	06	06	06	06	08
7	07	00	07	00	07	01	07	01	07	02	07	02	07	03	07	04	07	05	07	07	07	07	07	09
8	08	00	08	00	08	01	08	01	08	02	08	02	08	03	08	04	08	06	08	08	08	09	08	11
9	09	00	09	00	09	01	09	01	09	02	09	03	09	04	09	05	09	07	09	09	09	10	09	12
10	10	00	10	00	10	01	10	01	10	02	10	03	10	04	10	05	10	07	10	10	10	11	10	13
11	11	00	11	00	11	01	11	01	11	03	11	03	11	05	11	06	11	08	11	11	11	12	11	15
12	12	00	12	00	12	01	12	01	12	03	12	04	12	05	12	07	12	09	12	12	12	13	12	16
13	13	00	13	00	13	01	13	02	13	03	13	04	13	06	13	08	13	10	13	13	13	15	13	18
14	14	00	14	00	14	01	14	02	14	03	14	04	14	06	14	09	14	10	14	14	14	16	14	19
15	15	00	15	00	15	01	15	02	15	04	15	05	15	07	15	09	15	11	15	15	15	17	15	21
16	16	00	16	01	16	01	16	02	16	04	16	05	16	07	16	09	16	12	16	16	16	18	16	22
17	17	00	17	01	17	01	17	02	17	04	17	05	17	08	17	10	17	13	17	17	17	20	17	23
18	18	00	18	01	18	01	18	02	18	04	18	06	18	08	18	11	18	14	18	18	18	21	18	25
19	19	00	19	01	19	01	19	03	19	04	19	06	19	09	19	11	19	15	19	19	19	22	19	26
20	20	00	20	01	20	02	20	03	20	05	20	07	20	09	20	12	20	16	20	20	20	24	20	28
21	21	00	21	01	21	02	21	03	21	05	21	07	21	10	21	13	21	17	21	21	21	25	21	29
22	22	00	22	01	22	02	22	03	22	05	22	07	22	10	22	13	22	17	22	22	22	26	22	31
23	23	00	23	01	23	02	23	03	23	05	23	08	23	11	23	14	23	18	23	23	23	28	23	33
23,29	23	29	23	30	23	31	23	33	23	35	23	38	23	40	23	44	23	49	23	54	23	57	24	02

A TABLE of Amplitudes, from the Latitude 13 deg. 00 min. to the Latitude 24 deg. either North or South.

Degrees of Declination	The Degrees of Latitude																							
	13		14		15		16		17		18		19		20		21		22		23		24	
	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M
0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
1	01	02	01	02	01	02	01	02	01	02	01	03	01	03	01	04	01	04	01	04	01	05	01	05
2	02	03	02	03	02	04	02	05	02	05	02	06	02	07	02	08	02	08	02	09	02	10	02	11
3	03	05	03	05	03	06	03	07	03	08	03	09	03	10	03	12	03	13	03	14	03	15	03	17
4	04	06	04	07	04	08	04	10	04	11	04	12	04	13	04	15	04	17	04	19	04	21	04	23
5	05	08	05	09	05	11	05	12	05	13	05	15	05	17	05	19	05	21	05	23	05	26	05	28
6	06	10	06	11	06	13	06	15	06	16	06	19	06	21	06	23	06	26	06	28	06	31	06	34
7	07	11	07	13	07	15	07	17	07	19	07	22	07	24	07	27	07	30	07	33	07	36	07	40
8	08	12	08	15	08	17	08	19	08	22	08	25	08	28	08	31	08	34	08	38	08	42	08	45
9	09	14	09	17	09	19	09	22	09	25	09	28	09	31	09	35	09	39	09	43	09	47	09	51
10	10	15	10	18	10	21	10	24	10	27	10	30	10	34	10	38	10	43	10	47	10	52	10	57
11	11	17	11	20	11	23	11	27	11	30	11	34	11	38	11	43	11	48	11	52	11	58	12	03
12	12	19	12	22	12	25	12	29	12	33	12	38	12	42	12	47	12	52	12	57	13	03	13	10
13	13	21	13	24	13	28	13	32	13	36	13	41	13	47	13	52	13	58	14	04	14	10	14	17
14	14	22	14	26	14	30	14	34	14	39	14	44	14	50	14	55	15	01	15	07	15	14	15	21
15	15	24	15	28	15	32	15	37	15	42	15	47	15	53	16	00	16	05	16	12	16	19	16	27
16	16	26	16	30	16	35	16	40	16	45	16	51	16	57	17	03	17	10	17	18	17	25	17	34
17	17	28	17	32	17	37	17	42	17	48	17	54	18	01	18	07	18	15	18	23	18	31	18	40
18	18	30	18	34	18	40	18	45	18	51	18	57	19	05	19	11	19	20	19	28	19	37	19	46
19	19	31	19	36	19	42	19	48	19	54	20	01	20	08	20	16	20	24	20	33	20	43	20	52
20	20	33	20	38	20	44	20	51	20	57	21	05	21	12	21	20	21	29	21	39	21	49	21	59
21	21	35	21	41	21	46	21	53	22	00	22	08	22	16	22	25	22	34	22	44	22	55	23	06
22	22	37	22	43	22	49	22	56	23	04	23	12	23	20	23	29	23	39	23	50	24	01	24	12
23	23	38	23	45	23	51	23	59	24	07	24	15	24	24	24	34	24	44	24	55	25	07	25	19
23,29	24	08	24	15	24	22	24	29	24	38	24	46	24	56	25	05	25	16	25	27	25	39	25	51

A TABLE of Amplitudes, from the Latitude 25 deg. 00 min. to the Latitude 36 deg. either North or South.

Degrees of Declination	25		26		27		28		29		30		31		32		33		34		35		36	
	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M
0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
1	01	06	01	07	01	07	01	08	01	08	01	09	01	10	01	10	01	11	01	12	01	13	01	14
2	02	12	02	13	02	14	02	16	02	17	02	18	02	20	02	21	02	23	02	25	02	27	02	28
3	03	18	03	20	03	22	03	24	03	25	03	28	03	30	03	33	03	35	03	37	03	40	03	43
4	04	25	04	27	04	29	04	32	04	34	04	37	04	40	04	43	04	46	04	50	04	53	04	57
5	05	31	05	33	05	37	05	40	05	43	05	46	05	50	05	54	05	58	06	02	06	06	06	11
6	06	37	06	41	06	44	06	48	06	52	06	56	07	00	07	04	07	09	07	15	07	20	07	25
7	07	43	07	48	07	51	07	56	08	00	08	05	08	10	08	16	08	21	08	27	08	33	08	39
8	08	50	08	54	08	59	09	04	09	09	09	15	09	21	09	27	09	33	09	39	09	47	09	54
9	09	56	10	01	10	06	10	12	10	18	10	24	10	31	10	37	10	45	10	52	11	00	11	09
10	11	02	11	07	11	14	11	20	11	26	11	33	11	41	11	48	11	56	12	04	12	13	12	23
11	12	09	12	15	12	22	12	29	12	36	12	43	12	52	13	00	13	09	13	18	13	28	13	38
12	13	16	13	23	13	29	13	37	13	45	13	53	14	02	14	11	14	21	14	31	14	42	14	53
13	14	23	14	31	14	38	14	46	14	54	15	03	15	13	15	23	15	33	15	44	15	56	16	09
14	15	29	15	37	15	45	15	54	16	03	16	13	16	23	16	34	16	45	16	57	17	11	17	24
15	16	35	16	44	16	53	17	03	17	12	17	23	17	34	17	46	17	58	18	11	18	25	18	39
16	17	42	17	51	18	01	18	11	18	22	18	33	18	45	18	58	19	11	19	25	19	39	19	55
17	18	49	18	59	19	09	19	20	19	31	19	43	19	56	20	10	20	24	20	39	20	54	21	11
18	19	56	20	06	20	17	20	29	20	41	20	54	21	08	21	22	21	37	21	53	22	10	22	27
19	21	03	21	14	21	26	21	38	21	51	22	05	22	19	22	34	22	50	23	07	23	25	23	43
20	22	10	22	22	22	34	22	48	23	01	23	16	23	31	23	47	24	04	24	21	24	40	25	00
21	23	18	23	30	23	43	23	57	24	11	24	27	24	43	25	00	25	18	25	36	25	56	26	18
22	24	24	24	38	24	51	25	06	25	22	25	38	25	55	26	13	26	32	26	51	27	13	27	35
23	25	32	25	46	26	00	26	16	26	32	26	49	27	07	27	26	27	46	28	07	28	29	28	53
23,29	26	05	26	19	26	34	26	49	27	06	27	23	27	42	28	01	28	22	28	44	29	06	29	30

A TABLE of Amplitudes, from the Latitude 37 deg. 00 min. to the Latitude 48 deg. either North or South.

The Degrees of Latitude.

Degrees of Declination	37		38		39		40		41		42		43		44		45		46		47		48	
	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M
0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
1	01	15	01	16	01	17	01	18	01	19	01	21	01	22	01	23	01	25	01	26	01	28	01	29
2	02	30	02	32	02	34	02	36	02	39	02	41	02	44	02	47	02	50	02	53	02	56	02	59
3	03	45	03	48	03	51	03	55	03	58	04	02	04	06	04	10	04	15	04	19	04	24	04	29
4	05	00	05	05	05	08	05	13	05	18	05	23	05	28	05	34	05	40	05	46	05	52	05	59
5	06	15	06	21	06	26	06	32	06	38	06	44	06	51	06	58	07	05	07	12	07	20	07	29
6	07	31	07	37	07	43	07	50	07	57	08	05	08	13	08	21	08	30	08	39	08	49	08	59
7	08	46	08	54	09	01	09	09	09	17	09	26	09	35	09	45	09	56	10	06	10	18	10	30
8	10	02	10	11	10	19	10	28	10	37	10	47	10	58	11	09	11	21	11	34	11	47	12	00
9	11	17	11	27	11	37	11	47	11	57	12	09	12	21	12	34	12	47	13	01	13	16	13	31
10	12	32	12	43	12	54	13	05	13	18	13	31	13	44	13	58	14	13	14	28	14	44	15	02
11	13	49	14	01	14	12	14	25	14	39	14	53	15	07	15	22	15	38	15	56	16	15	16	34
12	15	05	15	18	15	31	15	45	16	00	16	15	16	31	16	48	17	06	17	25	17	45	18	06
13	16	21	16	35	16	49	17	05	17	20	17	37	17	55	18	13	18	33	18	54	19	16	19	39
14	17	38	17	53	18	08	18	24	18	42	19	00	19	19	19	39	20	00	20	23	20	47	21	12
15	18	54	19	10	19	27	19	44	20	04	20	23	20	43	21	05	21	28	21	52	22	18	22	45
16	20	11	20	28	20	46	21	05	21	25	21	46	22	08	22	32	22	56	23	23	23	50	24	20
17	21	28	21	46	22	06	22	26	22	47	23	10	23	34	23	59	24	25	24	53	25	23	25	55
18	22	46	23	05	23	26	23	47	24	10	24	34	24	59	25	26	25	54	26	25	26	57	27	31
19	24	03	24	24	24	46	25	09	25	33	25	58	26	25	26	54	27	25	27	58	28	32	29	07
20	25	21	25	43	26	06	26	31	26	56	27	24	27	53	28	23	28	56	29	31	30	07	30	45
21	26	39	27	03	27	27	27	53	28	21	28	50	29	20	29	53	30	27	31	03	31	42	32	23
22	27	58	28	23	28	49	29	16	29	45	30	16	30	48	31	22	31	58	32	37	33	18	34	03
23	29	17	29	43	30	11	30	40	31	11	31	43	32	16	32	51	33	30	34	12	34	56	35	43
23,29	29	56	30	22	30	30	31	20	31	52	32	28	33	03	33	40	34	20	35	03	35	48	36	35

A TABLE of Amplitudes, from the Latitude 49 deg. 00 min. to the Latitude 60 deg. either North or South.

The Degrees of Latitude.

Degrees of Declination	49		50		51		52		53		54		55		56		57		58		59		60	
	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M	D	M
0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
1	01	31	01	33	01	35	01	37	01	39	01	42	01	45	01	47	01	50	01	53	01	56	02	00
2	03	03	03	06	03	10	03	15	03	20	03	24	03	29	03	34	03	40	03	46	03	53	04	00
3	04	34	04	40	04	46	04	52	04	59	05	06	05	14	05	22	05	31	05	40	05	50	06	00
4	06	06	06	14	06	22	06	30	06	39	06	49	06	59	07	10	07	22	07	34	07	47	08	01
5	07	38	07	48	07	58	08	08	08	19	08	31	08	44	08	57	09	11	09	26	09	43	10	02
6	09	10	09	21	09	33	09	46	10	00	10	15	10	30	10	47	11	04	11	22	11	42	12	04
7	10	42	10	55	11	09	11	24	11	40	11	57	12	15	12	35	12	56	13	18	13	41	14	06
8	12	14	12	29	12	45	13	02	13	21	13	41	14	02	14	24	14	48	15	14	15	41	16	10
9	13	47	14	05	14	24	14	43	15	04	15	26	15	49	16	14	16	45	17	10	17	41	18	14
10	15	21	15	40	16	01	16	23	16	46	17	11	17	37	18	05	18	33	19	07	19	41	20	18
11	16	54	17	16	17	39	18	03	18	29	18	57	19	26	19	56	20	29	21	04	21	43	22	26
12	18	28	18	52	19	18	19	44	20	12	20	43	21	15	21	49	22	25	23	04	23	47	24	34
13	20	03	20	29	20	57	21	26	21	57	22	30	23	05	23	43	24	23	25	07	25	54	26	44
14	21	38	22	06	22	37	23	08	23	42	24	18	24	56	25	37	26	21	27	09	28	01	28	55
15	23	14	23	45	24	18	24	52	25	28	26	07	26	49	27	34	28	22	29	14	30	12	31	09
16	24	51	25	24	25	59	26	36	27	16	27	58	28	43	29	32	30	24	31	21	32	22	33	27
17	26	28	27	03	27	41	28	21	29	04	29	50	30	39	31	31	32	27	33	28	34	32	35	47
18	28	06	28	43	29	24	30	07	30	53	31	42	32	35	33	33	34	34	35	40	36	53	38	09
19	29	45	30	25	31	08	31	55	32	45	33	38	34	35	35	36	36	36	37	54	39	13	40	36
20	31	25	32	08	32	54	33	44	34	39	35	35	36	36	37	42	38	53	40	12	41	37	43	10
21	33	06	33	52	34	41	35	34	36	31	37	32	38	39	39	51	41	09	42	34	44	05	45	48
22	34	48	35	37	36	30	37	27	38	29	39	26	40	47	42	04	43	27	44	59	46	40	48	30
23	36	33	37	26	38	23	39	24	40	29	41	40	42	56	44	19	45	50	47	30	49	21	51	24
23,29	37	26	38	20	39	19	40	23	41	29	42	46	44	00	45	27	47	02	48	46	50	47	52	51

A TABLE of Amplitudes from the Latitude 61 Deg. 00 Min. to the Latitude 66 Deg. either North or South.

Degrees of Declination.	The Degrees of Latitude.										
	61		62		63		64		65		66
	D	M	D	M	D	M	D	M	D	M	D	M
0	00	00	00	00	00	00	00	00	00	00	00	00
1	02	03	02	07	02	12	02	17	02	22	02	27
2	04	08	04	15	04	24	04	33	04	44	04	55
3	06	12	06	24	06	37	06	51	07	06	07	23
4	08	17	08	32	08	50	09	09	09	30	09	52
5	10	21	10	41	11	04	11	28	11	54	12	22
6	12	27	12	52	13	19	13	47	14	19	14	53
7	14	34	15	02	15	34	16	08	16	45	17	26
8	16	40	17	14	17	51	18	30	19	13	20	00
9	18	49	19	28	20	09	20	54	21	43	22	37
10	20	57	21	40	22	27	23	18	24	13	25	14
11	23	10	23	58	24	51	25	48	26	50	27	58
12	25	23	26	17	27	15	28	19	29	28	30	44
13	27	39	28	37	29	42	30	52	32	09	33	34
14	29	56	31	01	32	12	33	30	34	55	36	29
15	32	16	33	27	34	45	36	11	37	46	39	31
16	34	39	35	57	37	23	38	57	40	42	42	40
17	37	05	38	31	40	05	41	49	43	46	45	58
18	39	36	41	10	42	54	44	49	46	59	49	26
19	42	11	43	54	45	49	47	57	50	23	53	11
20	44	52	46	46	48	53	51	17	54	02	57	14
21	47	40	49	46	52	07	54	50	57	59	61	47
22	50	35	52	56	55	36	58	43	62	26	67	04
23	53	42	56	20	59	24	63	02	67	36	73	52
23,29	55	17	58	04	61	22	65	22	70	33	78	25

The Use of the Tables of Amplitudes.

The Amplitude of the Sun or any Star, is so many Degrees Distance as they Rise or Set, from the East or West Points of the Horizon, either Northerly or Southerly.

Note, When the Sun or Stars hath North Declination, then the Amplitude found by these Tables must be reckoned from the East toward the North at their Rising; or from the West toward the North at their Setting.

But if they have South Declination, then the Amplitude must be reckoned from the East toward the South at their Rising, or from the West toward the South at their Setting.

To find the true Amplitude by the Tables.

Look for the given Latitude at the Top of the Table, and the Declination in the first Column to the Left-hand, and in the Common Angle of Meeting, you will find the Amplitude required, in Degrees and Minutes.

Case

Cafe 1*ft*. WHen the Latitude and Declination are both given in even Degrees, as for *Example*. Suppofe I would know the Sun's true Amplitude at his Rifing, in the Latitude of 40 ⁃00, his Declination being 17 00 N.

Under Latitude 40, and right againft Declination 17 I find 22 26, which is the Sun's true Amplitude, to be counted from the Eaft towards the North (becaufe it is at his Rifing, and the Declination is North) that is E. 22 26 N.

Cafe 2*d*. When the Latitude is given in even Degrees, and the Declination in Degrees and Minutes, as for *Example*. Suppofe I would know the Sun's true Amplitude at his Setting, in the Latitude of 57 00, his Declination being 11 33 S.

Find his Amplitude as before, for the Latitude 57, and for the Declination $\left\{\begin{array}{l}11 \text{ deg.}\\12 \text{ deg.}\end{array}\right\}$ which will be $\left\{\begin{array}{l}20\ 29\\22\ 25\end{array}\right\}$ then

fubtract the Leffer from the Greater, the Diff. is 1 56 or 116 m. to which put two Cyphers, and it makes 11600, which Number muft be divided by the Number ftanding againft the odd Minutes of Declination (in the following Table) which in this *Cafe* is 181, and the Quotient gives the Proportional Parts in Minutes, which Parts are always to be added to the Leffer of the two Amplitudes that you took the Difference of, and the Sum gives the true Amplitude as follows.

$$181)11600(64 \text{ Proportional Parts in Minutes,}$$
$$740 \qquad \text{makes 1 Degree 4 Minutes.}$$
$$10$$

Leffer of the Amplitudes ———— ———— ———— 20 29
Proportional Parts to be added ———— ———— 01 04
True Amplitude — ———— ———— ——W. 21 33 S.
becaufe at Sun-fetting, and the Declination South.

Cafe 3*d*. When the Declination is given in even Degrees, and the Latitude in Degrees and Minutes, as for *Example*. Suppofe I would know the Sun's true Amplitude at his Rifing, in the Latitude 51 14, his Declination being 14 00 S.

Find his Amplitude as before, to 14 Degrees Declination, and for the Latitude $\left\{\begin{array}{l}51 \text{ deg.}\\52 \text{ deg.}\end{array}\right\}$ which will be $\left\{\begin{array}{l}22\ 37\\23\ 08\end{array}\right\}$ and fubtract

the Leffer from the Greater, the Difference is 0 31 Minutes.

To

To the Difference of Amplitudes found on the foregoing Side, which is 31, put two Cyphers and makes it 3100, which muſt be divided by the Number ſtanding againſt the odd Minutes of Latitude (in the following Table) which in this *Caſe* is 428, and the Quotient gives the Proportional Parts in Minutes, to be added to the Leſſer of the two Amplitudes, as in *Caſe* the 2*d*.

428.)3100(7 Proportional Parts in Minutes.
104

Leſſer of the Amplitudes —— —— ——	22 37
Proportional Parts to be added —— ——	00 07
True Amplitude—— —— —— ——	E. 22 44 S.

Caſe 4th. When the Latitude and Declination are both given in Degrees and Minutes, as for *Example*. Suppoſe I would know the Sun's true Amplitude at his ſetting, in the Latitude 49 18, his Declination being 19 41 N.

Firſt find his Amplitude for Latitude 49 Degrees, and Declination 19 41 (as in *Caſe* the 2*d*) which will be 30 53.

In the ſame Manner find his Amplitude for Latitude 50 Degrees, and Declination 19 41, which will be 31 35.

Then from the Greater Amplitude ——	31 35
Subtract the Leſſer —— —— ——	30 53
Remains the Difference —— ——	00 42 Minutes.

Put two Cyphers to this Difference it makes 4200, which muſt be divided by the Numbers ſtanding right againſt the odd Minutes of the given Latitude, (in the following Table) which in this *Caſe* is 333, the Quotient gives the Proportional Parts in Minutes, to be added to the Leſſer of the two Amplitudes, *&c.*

333)4200(12 Proportional Parts.
870
204

The Leſſer Amplitude—— —— ——	30 53
Proportional Parts to be added ——	00 12
True Amp. for Lat. 49 18, and Decl. 19 41 NW.	31 05 N.

A

A TABLE of Numbers for finding the Proportional Parts, to the odd Minutes of Latitude or Declination, in finding the Sun's true Amplitude.

Odd Minutes	Numbers.	Odd Minutes	Numbers.	Odd Minutes	Numbers.	Odd Minutes	Numbers.
1	6000	16	375	31	193	46	130
2	3000	17	353	32	187	47	127
3	2000	18	333	33	181	48	125
4	1500	19	316	34	176	49	122
5	1200	20	300	35	171	50	120
6	1000	21	285	36	166	51	118
7	857	22	273	37	162	52	115
8	750	23	261	38	158	53	113
9	666	24	250	39	154	54	111
10	600	25	240	40	150	55	109
11	545	26	230	41	146	56	107
12	500	27	222	42	143	57	105
13	461	28	214	43	139	58	103
14	428	29	207	44	136	59	101
15	400	30	200	45	133		

The Use of this Table is to find a Number to divide the Difference of Amplitudes by, in order to find the Proportional Parts, when the Amplitudes is required for any Latitude or Declination that is given in Degrees and Minutes, (as in the foregoing *Cases*) to find which Number, look in some of the Columns under the Title of odd Minutes, for your given Minutes of Latitude or Declination, as suppose for 37 Minutes, and right against that you will find 162, which is the Number required.

To

To find the Variation of the Compass *by an Amplitude.*

To do this, you muſt have given both the true and magnetical Amplitudes.

The true Amplitude is to be found by the Tables us before taught.

The magnetical Amplitude is to be found by the Compaſs, at the Time of the Sun's Riſing or Setting, and is ſo many Degrees and Minutes as you find it to riſe from the Eaſt, or to ſet from the Weſt, either to the Northward or to the Southward : As for *Examp.* Suppoſe being at Sea, I find by ſetting the Sun with my Compaſs, that he riſes 10 deg. 15 min. to the Northward of the Eaſt, then the magnetical Amplitude is E. 10 15 N. Or Suppoſe I find by the Compaſs, that he ſets 14 deg. 12 min. to the Southward of the Weſt, then the magnetical Amplitude is W. 14 12 S.

Then if your true Amplitude, and magnetical Amplitude are both to the Northward, or both to the Southward, ſubtract the Leſſer from the Greater, the Remainder is the Variation.

But if one be to the Northward, and the other to the Southward, add them together, and the Sum will be the Variation.

		d.	m.	
Example 1ſt. True Amplitude	E.	18	34	N.
Magnetical Amplitude	E.	22	37	N.
Variation		04	03	Eaſterly.

		d.	m.	
Example 2d True Amplitude	W.	7	11	S.
Magnetical Amplitude	W.	2	06	N.
Variation		9	17	Weſterly

And thus having found how much the Variation is, it is remains in the next Place to find which way it is, that is, whether it be Eaſterly or Weſterly.

Rule, If the Amplitude be taken at Sun-riſing, and the magnetical Amplitude be farther from the North than the true Amplitude is, then the Variation is Weſterly, but if it be nearer to the North, it is Eaſterly.

If it be taken at Sun-ſetting, if the magnetical Amplitude be farther from the North than the true Amplitude is, then the Variation is Eaſterly, but if it be nearer to the North it is Weſterly, as may be ſeen by the two foregoing Examples.   By

By keeping a Journal is meant, keeping such an Account of the Ship's Way, that at any Time you may be able to know what Latitude and Longitude the Ship is in.

When a Ship is bound from any one Place to another that lies so far from it, that she is obliged to go out of fight of the Land for any confiderable Time, as fuppofe from *England* to *Barbadoes*, then at the Time fhe leaves the Land, fhe is faid to take her Departure, and that part of the Land, fhe then leaves, as fuppofe the *Start*, the *Lizard*, the *Land's-end*, &c. is faid to be the Place they take their Departure from. And at the Time of taking fuch Departure, the Captain or Mate generally takes the Bearing and Diftance of that Land (according to his Judgment) and fets it down on the Log-Board, or in the Log-Book againft the Time it was taken, thus,

Lizard, N. by W. Diftance 5 Leagues.
Or, *Start*, N. N. E. Diftance 6 Leagues, &c.

And in the fame manner for any other Place, Bearing and Diftance, as you will fee in the firft Day's Log, of the following Journal.

The Log-book being mark'd as follows, with Columns for Courfe, Diftance, Northing or Southing, Eafting or Wefting, Latitude by Dead Reckoning, Latitude by Obfervation, Meridian Diftance, Longitude made, and Longitude in, you are to take Notice.

That in the Column for Courfe, you are always to fet down the Courfe you have made by your Reckoning for that 24 Hours (that is from the Noon of the Day before, to the Noon of the Day you Work on) the Sea Account being always kept from Noon to Noon.

In the Column for Diftance, you are to fet down the Diftance made by your Reckoning for that 24 Hours.

In the Column of Northing or Southing, you are to fet down the Difference of Latitude made that 24 Hours, marking the Column with N. if the Difference of Latitude be Northerly, or with S. if it be Southerly.

In the Column of Eafting or Wefting, you are to fet down the Departure made that 24 Hours, marking the Column with E. if the Departure be Eafterly, or with W. if it be Wefterly.

In the Column mark'd Lat. by D. R. you are to fet down the Latitude you reckon yourfelf in on that Day.

In

In the Column mark'd Lat. by Obf. you are to fet down the Latitude you find yourfelf to be in by Obfervation, if you have one, if not, then let it ftand open.

In the Column for Mer. Dift. you are to fet down (in Degrees and Minutes) how much Departure you have made in all, from the Place you took your Departure from.

In the Column of Long. made, you are to fet down (in Degrees and Minutes) how much Difference of Longitude you have made in all from the Place you took your Departure from.

In the Column of Long. in, you are to fet down what Longitude you find yourfelf to be in on that Day by your Reckoning.

Note, The Account of Longitude made, being what is always kept in His Majefty's *Navy*. And the Account of Longitude in, being moft generally kept on Board the Merchant Ships: I fhall in this Treatife fhew how to keep them both, and fhall leave it to the Practitioner's Choice which he will make ufe of, they both being equally true, and there being no Occafion to keep more than one of them.

And not having (I think) given a fufficient Account of Things that are to be fet down in the feveral Columns, I fhall lay down thefe few neceffary Rules following, and then proceed to fhew how they are all to be found, or the Method of Working a Days Work at Sea.

Rule 1*ft*, Variation, if there be any, (as moft commonly there is,) muft be allowed upon all Courfes fteered, and upon all Bearings, &*c*. that are taken by the Compafs, that is, if it be Eafterly Variation it muft be allowed to the Right-hand: But if Wefterly Variation, then to the Left-hand of the Courfe or Bearing: Suppofing your felf placed in the Center of the Compafs, and looking directly forward to the Point you are to allow the Variation from.

Example. Suppofe I fteer SW. and there is one Point Wefterly Variation, then my true Courfe will be SW. by S. or fuppofe I fet a Point of Land, and find it to bear by my Compafs ESE. and I know there is half a Point Eafterly Variation, then the true Bearing is SE. by E. ½ E.

Rule 2*d*, Lee-way (which I fhall not here defcribe, becaufe fufficiently known to every Seaman) muft be allowed to be the Right-hand of the Courfe fteer'd, when the Larboard Tacks are Aboard, and to the Left-hand when the Starboard Tacks are Aboard.

Ex-

Example. Suppofe I fteer N. E. by E. with my Larboard Tacks Aboard, and make one Point Lee-way, then my Courfe made good is E.N.E.

Rule 3d. Lee-way and Variation, when they are both to be allow'd one way, that is, both to the Right-hand, or both to the Left, add them together, and allow their Sum the fame way they were to be allow'd.

But if they are to be allow'd one to the Right-hand, and the other to the Left, fubtract the Leffer from the Greater, and allow the Remainder the fame way as the Greater of them was to be allowed.

Example. Suppofe I fteer NNW. with my Starboard Tacks Aboard, and make one Point Lee-way, there being at the fame Time half a Point Wefterly Variation, I would know my true Courfe?

Lee-way to the Left-Hand —— —— 1 Point.
Variation to the Left-Hand —— —— 0 ½ Point.

Their Sum to be allowed to the Left-Hand 1 ½ Point makes the true Courfe NW. by N. ½ W.

Example 2d. Suppofe I fteer SW. by W. with my Larboard Tacks Aboard, and make 2 ½ Points Lee-way, and I have 1 ¼ Points Wefterly Variation, what is my true Courfe?

Lee-way to the Right-Hand —— 2 ½ Points
Variation to the Left-Hand —— 1 ¼

The Remainder to be allowed to the Right-hand 1 ¼ Points, makes the true Courfe WSW. ¼ W.

Rule 4th. When a Ship is lying too under a Main-fail, Mizen, &c. then obferve how fhe comes up and falls off, and take the middle between the two Points, and from that allow the Lee-way and Variation, as in *Rule 3d.*

Example. Suppofe a Ship lying too under a Main-fail, with the Starboard Tack Aboard, comes up E. by S. and falls off to NE. by E. there being 1 Point Wefterly Variation, and fhe making 5 Points Lee-way, what Courfe does fhe make good?

The middle between E. by S. and NE. by E. is E. by N. from which allowing 6 Points to the Left-Hand, (by *Rule 3d.*) the true Courfe will be N. by E.

Rule 5th. Currents, the way they fet you, and the Diftance you fuppofe you are driven by them, is to be fet in the Traverfe Table for the Day, as any other Courfe and Diftance.

Ex-

Example, Suppofe I try the Current and find it to fet W. by N. *per* Compafs 1 Mile *per* Hour, the Variation being one Point Eafterly, then if I fail in that Current 24 Hours, I fet down in the Traverfe Table, as a Courfe WNW. diftant 24 Miles.

Rule 6th, Heave of the Sea, is to be accounted for in the fame manner as Currents : As fuppofe, there is a great Sea heaving toward the SW. by my Compafs, there being ½ Point Wefterly Variation, I then fet down in my Traverfe-Table SW. by S. ½ W. with fo much Diftance as I judge the Sea has heav'd the Ship.

Rule 7th, At leaving the Land, the oppofite Point to the Bearing (with the Variation allow'd upon it) and the Diftance you judge yourfelf from it, muft be fet down in the Traverfe-Table, as a Courfe and Diftance.

Example, Suppofe having 1 ¼ Wefterly Variation, the *Start* bears by my Compafs NNE. diftant 4 Leagues : The oppofite Point to NNE. is SSW. which with the Variation makes S. ¾ W. for the Courfe to be fet in the Trhverfe-Table, diftant 12 Miles.

Rule 8th, When you make the Land, the Bearing itfelf (with the Variation allow'd upon it) and the Diftance you judge yourfelf from it are to be fet in the Traverfe-Table, as a Courfe and Diftance : This needs no Example.

Note, If you keep only the Account of Longitude made, and would at any Time know what Longitude you are in, look out the Longitude of the Place you took your Departure from, and with that Longitude, and the Longitude made, taken as Difference of Longitude, find the Longitude in, by the Rules in Page 107 and 108. And the Longitude fo found muft be counted from the fame Meridian that the Tables you look'd out the Longitude of the Place departed from, counts it.

RULES to Correct the Dead-Reckoning *by an* Obfervation.

WHEN you have made all the proper Allowances you can, fuch as for Variation, Lee-way, Currents, &c. and ftill find that your Latitude by Dead-Reckoning will not agree with the Latitude by Obfervation, within five Minutes, then you muft Correct as follows.

CASE the Firft.

If your Courfe found by Dead-Reckoning be due North, or due South.

Rule, Firft find the Difference of Latitude (in Miles) between the laft Obfervation, and the Obfervation on the Day you Correct, which will be the true Difference of Latitude, then will your true Courfe be the fame as the Courfe by Dead-Reckoning. Your true Diftance the fame as the true Difference of Latitude. Your Departure 00, and your Meridian Diftance, Longitude made, (or Longitude in) will be the fame as they were on the Day you had the laft Obfervation.

CASE the Second.

If the Courfe found by Dead-Reckoning be lefs than 3 Points, or 33 Degrees.

Rule, Firft find the Difference of Latitude (in Miles) between the laft Obfervation, and the Obfervation on the Day you Correct, which will be the true Difference of Latitude. Then make your true Courfe the fame as the Courfe found by Dead-Reckoning, fince the laft Obfervation, and with that Courfe, and the true Difference of Latitude, find the true Diftance and Departure *(as in Plain Sailing, Cafe the 2d,)* then to find the Meridian Diftance, the Longitude made, and the Longitude in, take the following Rule.

N. B. The Difference of Longitude is to be found by the true Courfe, and the Meridional Difference of Latitude between the two Obfervations (as ufual) and the Meridian Diftance, Longitude made (or Longitude in) are to be found by adding, or fubtracting the true Departure and Difference of Longitude to, or from the Meridian Diftance, Longitude made (or Longitude in) on the Day you had the laft Obfervation, which is the Day you always Correct from.   Cafe

CASE the Third.

If the Courfe found by Dead-Reckoning, be more than 3 Points, or 33 Degrees, and lefs than 6 Points, cr 67 Degrees.

Rule, Firft find the Difference of Latitude in Miles between the laft Obfervation, and the Obfervation on the Day you Correct, which will be the true Difference of Latitude: Then with the Coufe found by Dead-Reckoning, fince the laft Obfervation, and the true Diffe-rence of Latitude, find a new Departure, *(by the Second Cafe of Plain Sailing)* add this new Departure to the Departure found by Dead-Reckoning fince the laft Obfervation, and take half their Sum for your true Departure: Then you have given the true Difference of Latitude and Departure to find your true Courfe and Diftance, *(by Plain Sailing, Cafe 6th)* read here *N. B.* In Cafe the 2*d.*

CASE the Fourth.

If the Courfe found by Dead-Reckoning be more than 6 Points, or 67 Degrees.

Rule, Firft find the Difference of Latitude in Miles, between the laft Obfervation, and the Obfervation on the Day you Correct, which will be the true Difference of Latitude, and make your true Depar-ture the fame, as the Departure found by Dead-Reckoning fince the laft Obfervation: Then you have given the true Difference of Lati-tude and Departure, to find the true Courfe and Diftance *(by Plain Sailing, Cafe 2d.)* read here the *N. B.* in Cafe the 2*d.*

Note, As the Knowledge of which Cafe you are to Correct by, depends upon knowing your Courfe by Dead-Reckoning, and as when you Correct only for one Day, that Courfe is always found by the difference of Latitude and Departure in your Traverfe-Table for that Day ; therefore if you are to Correct for a longer Time than one Day, you muft take the Northing, Southing, Eafting and Wefting that you have made for every Day fince the laft Obfervation, (or if it be your firft Obfervation, then for every Day from your leaving the Land) minding not to leave out the Difference of Latitude and Departure for the Day you are Correcting on, and bring them into a Traverfe-Table ; by which you will find the whole Difference of Latitude and Departure, made by Dead-Reckoning fince the laft Obfervation, and with that fame Difference of Latitude and Departure

find

find the Course made by Dead-Reckoning, then observe which of the foregoing Cases that Course comes under, and Correct by the Rules for that Case, finding every Thing except the Distance.

And when you have so corrected, you are to set down in your Book only the Latitude by Dead-Reckoning, the Latitude by Observation, the Meridian Distance and the Long. made (or Longitude in) and rub out the Course, Difference of Latitude and Departure.

Then you have given the Latitude by Observation on the Day you Correct, and the Latitude by Dead-Reckoning on the Day before it, to find the Difference of Latitude for the last 24 Hours, (by the Rules for Latitude, Page 105.) Also the Meridian Distance on the Day you Correct, and the Meridian Distance on the Day before it, to find your Departure, (by subtracting the Lesser from the Greater, if they are both East, or both West; or by adding them together, if one be East and the other West.) And with that Difference of Latitude and Departure find your Course and Distance, (*by the 6th Case of Plain Sailing*) which Course, Distance, Difference of Latitude and Departure are to be set down instead of them you rubb'd out.

Rules to find the Meridian Distance.

Case 1*st*, If the Meridian Distance on the Day you Work from be East, and if you have sail'd to the Eastward; or if it be West, and you have sail'd to the Westward, then add the Departure to the Meridian Distance, and the Sum will be the Meridian Distance you have made, of the same Name with that you work'd from.

Example Meridian Distance		4	18 W.
Departure Westerly 97 Miles, or—		1	37
Meridian Distance made in all ——		5	55 W.

Case 2*d*, If your Meridian Distance be East, and the Departure be Westerly; or if the Meridian Distance be West, and Departure Easterly, then subtract the Lesser from the Greater, the Remainder will be the Meridian Distance you have made, of the same Name with the Greater of the two.

Example 1*st*. Meridian Distance		7	34 W.
Departure Easterly —		1	16
Meridian Distance made in all		6	18 W.
Example 2*d*. Meridian Distance		1	34 W.
Departure Easterly		3	17
Meridian Distance made in all		1	43 E.

A

JOURNAL

OF

A VOYAGE from ENGLAND

TOWARDS

MADERA

H	K	H K F	Courses	Winds	Lee-way	Transactions, *Thursday May the 1st*, 1762.
2						
4						Moderate Gales and fair
6		The *Start* N. by E. dift. 6 Leag.				Weather, at 6 (p. m.) the *Start* bore as per Log. from
8	4		SW. bW.	N E.		which I take my Departure,
10	4	1				it being in the Latitude
12	5					50 07 N. and Long. of
2	5					3 47 W. from *London*.
4	5	1	S.W.			
6	5	1				
8	5	1				Variation 1¼ Point W.erly.
10	5	1				
12	6					

Courses	Dift.	S.	W	Lat. by D.R.	Lat. by Ob.	Mer. Dift.	Lon. made	Lon. in
S 30 co W	108	93	53	48 34 N.		00 53 W	01 22 W	5 09 W

The Manner of working this Day's Work.

The oppofite Point to the Bearing of the Land is S. by W. which with the Variation allow'd upon it (as before taught) makes S. ¼ E. and Diftance from the Land 6 Leagues, or 18 Miles, which are to be fet down for the firft Courfe and Diftance in the following Traverfe Table.

Then the firft Courfe fteer'd being SW. by W. the Variation allow'd upon it will make it SW. by S. ¾ W and the Sum of all the Diftances from 8 a Clock where that Courfe begins, to 2 a Clock where it ends, being 18 Miles and a half, I double that Sum, becaufe the Book is mark'd only for every Two Hours) and it makes 37 Miles for the Diftance belonging to that Courfe. But if the Book had been mark'd for every Hour, as it is in the *Navy*, and Aboard the *Eaft-India* Ships, then I muft have taken the Sum without doubling it for the Diftance, and in the fame Manner I reckon the other Courfe and Diftance ; all which will be as in the following Traverfe-Table.

And then every Thing being found as on the other Side, I fet them down in their proper Columns as above.   Courfe

Courses.	Dift.	N.	S.	E.	W.
S. ¼ E.	18		18.0	0.9	
SW. by S. ¾ W.	37		27.4		24.8
SSW. ¾ W	56		48.0		28.8
Difference of Latitude S.			93.4	9.9	53.6
					0.9
					52.7	Dep. W.

The feveral Courfes and Diftances in this Table, being look'd out and caft up as in the Rules for Traverfe Sailing, (Page 52) I find my Difference of Latitude to be 93 Miles and 4 Tenths, and my Departure 52 Miles and 7 Tenths : Then I mark down (upon my Slate, or the Paper that I work upon) every Thing that is to be found, and as I find what they come to, I fet againft them as follows.

By D.R.
Courfe —— S. 30 00 W.
Diftance —— 108 Miles
Diff. of Lat.—— 93 S.
Departure 53 W.
Latitude by D.R. 48 34 N
Latitude Obfervation
Meridian Diftance 00 53 W.
Longitude made 01 22 W
Longitude in 05 09 W.

Becaufe the Diff. Lat. is S. and the Depar. W. *Note*, When the Tenths in any Side are more than 5, or half a Mile, you muft call that Side 1 Mile more than you found it to be ; but when they are lefs than 5, then you need take no Notice of them. As in this Cafe the Diff of Lat. being 93.4 I rejeft the 4 Tenths, and call it only 93 Miles, and the Dep. being 52.7, inftead of the 7 Tenths I put 1 Mile to it, and call it 53 Miles.

But when you take the Difference of Latitude and Departure to find the Courfe by, then take them in Miles and Tenths.

Then in the firft Place, with my Difference of Latitude 93.4, and my Departure 52.7 (as Taught in Plain Sailing, *Cafe the 6th*) I find my Courfe to be 30 Degrees, and my Diftance 108 Miles, which I fet down againft Courfe and Diftance as above.

Second, For the Latitude by D. R.
Take the Latitude fail'd from 50 07 N.
And the Diff. Lat. 93 Miles, or 1 33
Sub. (as per Rules) gives Lat. D.R. 48 34 N.

Third, For the Meridian Diftance.
Note, The Meridian Diftance on the firft Day's Work, is always the fame as that Day's Dep. which here is 0 53 W.

Fourth, For the Difference of Longitude.
The Meridional Parts of
The Latitude fail'd from } 3485
Of the Lat. by D. R. 3343
Meridional Difference of Lat. 142

Then I look for my Courfe 30 Degrees, in the Tables of Diff. of Lat. and Dep. and for the Merid. Diff. of Lat. 142, in fome of the Diff. of Lat. Columns belonging to that Courfe, the Dep. 82 which anfwers to that Diff. Lat. is my Diff. Long.

Fifth, For the Longitude made.
The Long. made on the firft Day's Work, is always the fame as that Day's Diff. of Long. which here is — 1 22 W.

Sixth, For the Longitude in.
Take the Longitude fail'd from 3 47 W.
And the Diff. Long 82 Miles, or 1 22 W.
Sub (as per Rules) gives Lon. in 5 09 W.
H.

H	K	H K F	Courses	Winds	Lee-way	Transactions, *Friday May the 2d*, 1762.
2	6		SW.bW.	N.		
4	5	1				Moderate Gales and fair
6	5			NW.		Weather, at 8 (a. m.) saw
8	5		S.W.			a Ship to the Northward.
10	4	1				
12	4	1 1				
2	4	1 1				
4	4	1 1 1				
6	4	1 1				
8	5		SWbS.	WNW		
10	4	1				Variation 1¼ Point W.erly.
12	4					

Courses	Dist.	S.	W	Lat. by D.R.	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
S 33 00 W	114	96	61	46 58 N.		1 54 W	2 55 W	6 42 W

The Variation being allow'd, and the Distances summ'd up as before, the Traverse-Table will be as follows.

Course	Dist.	N.	S.	E.	W.
SWbS¼W	43		31.9		28.9
SSW¾W	45		38.6		23.1
S by W¼W	27		25.4		9.1
			Diff. of Lat. 95.9	Dep. 61.1	

By D.R.
- Course ——— S. 33 00 W
- Distance ——— 174 Miles.
- Diff. of Lat. ——— 96 S.
- Departure ——— 61 W.
- Latitude by D.R. 46 58 N.
- Latitude by Observation
- Meridian Distance— 1 54 W
- Longitude made — 2 55 W
- Longitude in ——— 6 42 W

First, With my Difference of Latitude 95.9 and Departure 61.1 (by Plain Sailing Case 6,) I find my Course to be 33 deg. and my Distance 114 Miles.

Second, For my Latitude by D.R.
Take the Latitude in yesterday 48 34 N.
And my Diff. Lat. 96 Miles, or   1 36
Gives the Latitude by D.R. —— 46 58 N.

Third, For the Meridian Distance,
Take the Mer. Dist. yesterday   0 53 W.
And the Departure to-day ——   1 01
Gives the Meridian Distance — 1 54 W.

Fourth, For the Diff. of Longitude.
Take the Mer. Parts of yest. Lat. — 334
And of the Latitude to-day —— 320
Gives the Mer. Diff. of Latitude — 14
with which and the Course (as in the first Day's Work) I find my Diff. of Longitude to be 93 Miles.

Fifth, For the Longitude made.
Take the Long. made yesterday 1 22 W.
And the Diff. of Long. to-day }
93 Miles, or ——————— }   1 33
Gives the Long. made to-day   2 55 W.

Sixth; For the Longitude in,
Take the Long. in yesterday   5 09 W.
And the Diff. of Long. to-day   1 33
Gives the Longitude in ——   6 42 W.

H	K	H	K	F.	Courses	Winds	Lee-way	Transactions, *Saturday, May the 3d, 1762.*
2	4				S W	W N w		Moderate Gales and Cloudy.
4	4							
6	4							
8	54	I			SW b S	W byN	½	
10	64	I						
12	64	I						
2	4	I			In 1 ft Reef both Top-fails			
4	34				S S W	W	I	
6	34							
8	34							
10	34							Variation 1 Point W.erly.
12	34							

Course	Dift.	S.	W	Lat. by D.R.	Lat. by Ob.	Mer. Dift.	Lon. made	Lon. in
S 14 00 W	97	95	24	45 23 N		2 18 W	3 29 W	7 16 W

The Lee-way and Variation being allow'd, as before taught, the Traverſe-Table will be as follows.

Courses	Dift.	N.	S.	E.	W.
SW. by S.	24		20.0		1.33
S by W ½ W	36		34.5		10.4
South	40		40.0		
			94.5		23.7

Firft, The Courſe and Diſtance found (by Plain-Sailing Caſe 6.) as before will be as in the other Column.

Second, For my Latitude by D.R.
Take the Latitude in yeſterday 46 58 N.
And the Diff. of Latitude 95 Miles, or —— } 1 35
Gives the Latitude by D.R. —— 45 23 N.

Third, For the Meridian Diſtance,
Take the Mer. Dift. yeſterday 1 54 W.
And the Departure to-day —— 0 24
Gives the Meridian Diſtance —— 2 1 8 W.

By D.R. {
Courſe —— S. 14 00 W.
Diſtance —— 97 Miles
Diff. of Lat. —— 95 S.
Departure —— 24 W.
Latitude by D.R. 45 23 N.
Lat. by Obſervation
Meridian Diſtance 2 18 W.
Longitude made 3 29 W.
Longitude in—— 7 16 W.
}

Fourth, For the Diff. of Longitude.
The Mer. Parts of yeſterdays Lat. —— 3200
Of to-days Lotitude —— 3063

The Meridian Difference of Latitude 137 with which and the Courſe, (as before) I find the Difference of Lon. to be 34 Miles.

Fifth, for the Longitude made.
Take the Long. made yeſterday 2 55 W.
And the Diff. of Long. to-day 0 34 W.
Gives the Longitude made —— 3 29 W.

Sixth, For the Longitude in,
Take the Long. in yeſterday 6 42 W.
And the Difference of Longitude 0 34
Gives the Longitude in —— 7 16 W.

T   Th

H	K	H K	F.	Courses	Winds	Lee-way	Transaction, *Monday May the 4th*, 1762.
2	4			S	W S W	1	Moderate Gales and Hazy the first Part, the latter fresh Gales with Rain.
4	4						
6	4	1					
8	4			In 2d Reef both Top-sails			
10	4			S S E.	S W.	1½	
12	4						
2	4						
4	4						
6	4			Handed the Fore Top-sail			
8	4			S by E	SW by W	2	Variation 1 Point W.erly.
10	4						
12	3	1			Tack'd		

Courses	Dist.	S	E	Lat. by D.R.	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
S 39 00 E	93	72	60	44 11 N.		1 18 W	2 07 W	5 54 W

The Ship having her Starboard Tacks aboard, when the Leeway and Variation are allow'd (as before taught) the Traverse Table will stand as follows.

Courses	Dist	N.	S.	E.	W.
S S E	33		30.5	12.6	
S E ½ E	40		25.4	30.9	
S E	23		16.3	16.3	
			72.2	59.8	

By D.R.
{
Course ——— S. 39 00 E.
Distance ——— 93 Miles
Diff. of Lat.——— 72 S.
Departure——— 60 E.
Latitude by D.R. 44 11 N.
Latitude Observation
Meridian Distance 1 18 W.
Longitude made 2 7 W.
Longitude in——— 5 54 W.
}

Having been very particular in explaining the Manner of working a Day's Work (in the three foregoing Days) and as all Days Works, where there is no Correction wanting, are to be work'd from the Difference of Latitude and Departure found by the Traverse Table (as before) I have here only set down the Traverse Table, and what all the other Things come to, and have left the finding of them to exercise the Learner.   H

H	K	H	K	F.	Courses	Winds	Lee-way	Transaction, *Monday, May the 5th,* 1762.
2	4				NWbyW	SW byW	2	Fresh Gales and Rain all these 24 Hours.
4	3							
6	3							
8	3				Hand Main Top-sail			
10	3				N W	W S W	3	
12	3	1						
2	3	1	1					
4	3	1	1					
6	3							
8	3							
10	3				NW byN	W by S	3½	Variation 1 Point W.erly.
12	3							

Course	Dist.	N	W	Lat. byD.R.	Lat. byOb.	Mer. Dist.	Lon. made	Lon. in
N29 00 W	75	65	36	45 16 N		1 54 W	3 00 W	6 47 W

The Ship having her Larboard Tacks Aboard, when the Lee-way and Variation allow'd, the Traverse-Table will stand as follows.

Courses	Dist.	N.	S.	E.	W.
N W	32	22.6			22.6
N N W	33	30.5			12.6
N ½ W	12	11 9			1.2
		65.0			36.4

By D.R.
{
Course ———— N. 29 00 W.
Distance ———— 75 Miles
Diff. of Lat.—— 65 N.
Departure ——— 36 W.
Latitude by D.R. 45 16 N.
Lat. by Observation
Meridian Distance 1 54 W.
Longitude made 3 00 W.
Longitude in—— 6 47 W.
}

To find the Course.

Note, In this Case the Difference of Latitude being just 65 Miles without any Tenths, after you have put two Cyphers to the Departure, you must not divide it by 65, but by 650, the Cyphers being put to supply the Place of Tenths, as directed in the Rule for Plain-Sailing, see the Work.

Diff. Lat. D. with Cyphers.

650) 3640 (56 N.
3900 for Courses
———
· · ·

T 2

H	K	H K	F	Courses	Winds	Lee-way	Transactions, *Tuesday May the 5th*, 1762.
2	3			WNW	S W	3½	
4	3						Hard Gales and Squaly
6	3			Handed the Fore-sail			with Rain.
8		Lay too, up N W. off N.				5	
10							
12		Drift 1½ Miles *per* Hour.					
2							
4				Up N by W off NE by N			
6							
8							
10				Up NNW. off NNE.			Variation 1 Point W.erly.
12				Set the Fore-sail			

Course	Dift.	N	E	Lat. by D.R.	Lat. by Ob.	Mer. Dift.	Lon. made	Lon, in
N 8 00 E	35	34	5	45 50 N.		1 49 W	2 53 W	6 40 W

Having allow'd the Lee-way, and the Variation upon the first Course, and also from the Middle between what she comes up and falls off, (as taught in the Rules for laying too,) the Traverse Table will stand as follows.

Courses	Dift.	N.	S.	E.	W.
NW bN ½ W	18	13.9			11.4
N N E	12	11.1		4.6	
N E by E	9	5.0		7.5	
N E	6	4.2		4.2	
		34.2		16.3	11.4
				11.4	

Departure 4.9 E.

Ey { Course ———— N. 8 00 W.
Diftance ———— 35 Miles
Diff. of Lat.——— 34 N.
Departure ——— 5 E.
Latitude by D.R. 45 50 N.
D.R. { Latitude Obfervation
Meridian Diftance 1 49 W.
Longitude made—— 2 53 W.
Longitude in—— 6 40 W.

H	K	H K	F.	Courses	Winds	Lee-way	Transactions, *Wednesday May the 7th*, 1762.
2	3			N W	W S W	4	Fresh Gales the first Part,
4	3						the latter Moderate, with
6	3			W N W	S W.	4	small Showers.
8	3			Set Main Top-sail			
10	3	I		N W	W S W	3	
12	3	I					
2	3	I		Set Fore Top-sail			
4	4			W by S	S by W	2	
6	4						
8	4			Out 2d Reef both Topsails			Variation 1 Point W.erly.
10	4						
12	4	I		W.	S S W.	$1\frac{1}{2}$	

Courses	Dist	N	W	Lat. by D.R.	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
N 54 00 W	72	42	58	46 32 N.		2 47 W	4 17 W	8 04 W

Courses	Dist.	N.	S.	E.	W.
N by W	12	11.8			2.3
N W by N	12	10.0			6.7
N N W	21	19.4			8.0
W	32				32.0
W b N $\frac{1}{2}$ W	9	0.9			9.0
		42.1			58.0

By D.R.
- Course —— N. 54 00 W.
- Distance —— 72 Miles
- Diff. of Lat.—— 42 N.
- Departure—— 58 W.
- Latitude by D.R. 46 32 N.
- Latitude Observation
- Meridian Distance 2 47 W.
- Longitude made 4 17 W.
- Longitude in—— 8 04 W.

H	K	H	K	F	Courses	Winds	Lee-way	Transactions, *Thursday May the 8th*, 1762.
2	4		1		W by N	SW b S	1	
4	4		1					Moderate Gales and
6	4				Out 1st Reef both Topsails			thick Hazy Weather.
8	4		1		W.	S S W.	½	
10	4		1	1				
12	4		1					
2	4				W by S	S by W	½	
4	4							
6	4							
8	4							
10	3		1		W S W	S	½	Variation 1 Point W.erly.
12	3							

Course	Dist.	S	W	Lat. by D.R.	Lat by Ob.	Mer. Dist.	Lon. made	Lon. in
S 82 00 W	95	13	95	46 19 N.		4 22 W	6 33 W	10 20 W

Courses	Dist.	N.	S.	E.	W.	
W by N	26	5.1			25.5	
W b S ½ W	27		2.6		26.9	Ey
W S W ½ W	32		9.3		30.6	D.R.
SW by W W	13		6.1		11.5	
		5.1	18.0		94.5	
			5.1			
Difference of Latitude			12.9			

Course ——————— S. 82 00 W.
Distance ——————— 95 Miles
Diff. of Lat. ———— 13 S.
Departure ————— 95 W.
Latitude by D.R. 46 19 N.
Latitude Observation
Meridian Distance 4 22 W.
Longitude made —— 6 33 W.
Longitude in ——— 10 20 W.

H

H	K	H K	F	Courses	Winds	Lee-way	Transactions, *Friday* May the 9th, 1762.
2	2	1		W S W	S.		
4	2	1					Little Wind and small
6	2	1					Showers of Rain.
8	2						
10	2						
12	2						A great Swell from the
2	1	1					SW. for which I allow 6
4	1	1		SWbW	S by E		Miles
6	1	1					
8	1						
10		1					Variation 1 Point W.erly.
12		1					

Courses	Dift.	S.	W	Lat. by D.R.	Lat. by Ob.	Mer. Dift.	Lon. made	Lon. in
S 57 00 W	34	19	29	46 00 N.		4 51 W	7 15 W	11 2 W

Courses	Dift.	N.	S.	E.	W.	
S W by W	30		16.7		24.9	
S W	10		7.1		7.1	By
NE by N	6	5.0		3.3		D.R.
		5.0	23.8	3.3	32.0	
			5.0		3.3	
			18.8		28.7	

Course ——————— S. 57 00 W.
Diftance ——————— 34 Miles
Diff. of Lat. ———— 19 S.
Departure ———— 29 W.
Latitude by D.R. 46 00 N.
Lat. by Obfervation
Meridian Diftance — 4 51 W.
Longitude made ——— 7 15 W.
Longitude in ———— 11 02 W.

Note, In this Day's Work the Swell coming from the SW. heaves the Ship towards the NE. and the Variation allowed upon it makes NE. by N. for the laft Courfe in the Traverfe-Table.

H.

H	K	H	K	F	Courses	Winds	Lee-way	Transactions, *Saturday, May the* 10th, 1762.
2					Calm			Tried the Current and found it to set W.S.W. 1 Mile *per* Hour, at which Rate I allow it for this 24 Hours.
4								
6								
8								
10								
12								
2								Zenith Distance 27 52 S.
4								Declination —— 17 41N.
6								
8	1				S S W	W.		
10	2							Variation 1 Point W. erly.
12	2	1						

Course	Dist.	S.	W	Lat. by D.R	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
S 42 00 W	32	24	22	45 36 N.	45 33 N.	5 13 W	7 50 W	11 37 w

Courses	Dist	N.	S.	E.	W.
S by W	11		10.8		2.1
SW b W	24		13.3		20.0
			24.1		22.1

Course — —— S. 42 00 W.
Distance – —– 32 Miles
Diff of Latitude 24 S.
Departure ——— 22 W.
Latitude by D.R. 45 36 N.
Latitude Observ. 45 33 N.
Meridian Distance 5 13 W.
Longitude made 7 50 W.
Longitude in — 11 37 W.

Note, The Current setting W.S.W. 1 Mile *per* Hour, I allow the Variation upon it, which makes it SW. by W. and set it in the Traverse Table, with 24 Miles Distance, as above.

H

H	K	H K	F.	Courses	Winds	Lee-way	Transactions, *Sunday May the 11th, 1762.*
2	3			S by W	W by S		
4	3	I					Moderate Gales and fair
6	4						Weather, at 9 (a. m.) spoke
8	4						with a Ship from *Barbadoes,*
10	4						and bound for *London.*
12	4						
2	4						
4	4						
6	4						
8	4						
10	4						Variation 1 Point W. erly.
12	4						

Course	Dist	S	—	Lat. by D.R.	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
South	103	103	—	44 00 N.	43 50 N.	5 13 W	7 50 W	11 37 W

By D.R. since last Obser.

{
Course ———————— South
Distance ————— 93 Miles
Diff. of Lat. ———— 93
Departure ————— 00
Latitude by D.R. —— 44 00 N.
Latitude Observation 43 50 N.
}

Cor- rected

{
Course——————— South
Distance ————— 103 Miles
Diff. of Lat.——— 103 S.
Departure ———— 00
Latitude by D.R.—— 44 00 N.
Latitude Observation 43 50 N.
Meridian Distance—— 5 13 W.
Longitude made —— 7 50 W.
Longitude in ——— 11 37 W.
}

In this Day's Work, there being 10 Miles Difference between the Latitude by Dead-Reckoning and Observation, I am to Correct, and therefore I do not find the Meridian Distance, *&c.* by (D.R.) as I did when there was no Correction; but I mark them all down again as above, and Correcting (as in Case the First, of the Rules for Correcting) because my Course by D.R. since the last Observation was due South, I set them all down, as in the above Correction.

U

H

H	K	H K F	Courses	Winds	Lee-way	Transactions, *Monday, May the 12th, 1762.*
2	4		SW b S	W N W		
4	4	1				Moderate Gales and
6	4	1				fine clear Weather.
8	4	1				
10	4					
12	4					
2	4	1				
4	4	1	S S W			
6	4					
8	4					
10	4					Variation 1 Point W.erly.
12	4	1				

Course	Dist.	S	W	Lat. by D.R.	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
S 18 00 W	112	106	35	42 13 N	42 04 N	5 48 W	8 37 W	12 24 W

Courses	Dist.	N.	S.	E.	W.
S S W	60		55.4		23.0
S by W	42		41.2		8.2
			96.6		31.2

Cor-rected.

Course —————— S. 18 00 W.
Distance ————— 112 Miles
Diff. of Lat.—— 106 S.
Departure ————— 35 W.
Latitude by D.R.   42 13 N.
Lat. by Observation 42 04 N.
Meridian Distance   5 48 W.
Longitude made   8 37 W.
Longitude in—— 12 24 W.

By D.R. since last Obser.

Course —————— S. 18 00 W.
Distance———— —102 Miles
Difference of Lat.   97 S.
Departure ————— 31 W.
Latitude by D.R. —42 13 N.
Latitude Obser. —42 04 N.

Having found as far as to the Latitude by Dead-Reckoning and Observation, I see they differ 9 Miles, therefore I Correct (by Cafe the 2d.) because my Courfe found by Dead-Reckoning fince the laft Obfervation, is lefs than 33 Degrees, and the refult is as above.

H

H	K	H K	F.	Courses	Winds	Lee-way	Transactions, *Tuesday* May the 13th, 1762.
2	4			S W	N W		
4	4	1					Moderate and Fair.
6	4						
8	4						
10	3	1		SWbW			
12	4						
2	4				N		
4	3	1					
6	5	1					
8	3	1					
10	3	1					Variation ¾ Point W.erly.
12	3	1			N E		

Course	Dift	S	W	Lat. by D.R.	Lat. by Ob.	Mer. Dift.	Lon. made	Lon. in
S 47 00 W	78	53	57	40 59 N.	41 11 N.	6 45 W	9 53 W	13 40 w

Courses	Dift.	N.	S.	E.	W.	
SWb S¼W	33		26.5		19.7	
SW ¼ W	58		38.9		43.0	Cor-
			65.4		62.7	rected

Corrected {
Course ———— S. 47 00 W.
Diftance ———— 78 Miles
Diff. of Lat.——— 53 S.
Departure ———— 57 W.
Latitude by D.R.—— 40 59 N.
Latitude Obfervation 41 11 N.
Meridian Diftance—— 6 45 W.
Longitude made —— 9 53 W.
Longitude in ———13 40 W.
}

By D.R. fince laft Obfer. {
Courfe ———— S. 44 00 W.
Diftance ———— 91 Miles
Diff. of Lat. ——— 65 S.
Departure ———— 63 W.
Latitude by D.R. —— 40 59 N.
Latitude Obfervation 41 11 N.
}

New Departure ——— 51
Departure by D.R.—— 63

Their Sum——— 114

½ Sum, or True Dep. 57 Miles

In this Cafe, the Courfe by D.R. fince laft Obfervation being more than 33, and lefs than 67 Degrees, I corrected by Cafe the 3d.

H

H	K	H	K	F	Courses	Winds	Lee-way	Transactions, *Wednesday,* *May the* 14th, 1762.
2	4				W	S E		
4	4							Cloudy the first Part, the
6	4							latter Moderate and Fair.
8	4							
10	4					E		
12	4							
2	4							
4	4							
6	4							
8	3	1						
10	3	1						Variation ½ Point W.erly.
12	3	1				N N E		

Course	Dift	–	W	Lat. by D.R.	Lat. by Ob.	Mer. Dift.	Lon. made	Lon. in
West	93	–	93	41 02 N	41 11 N	8 18 W	11 56 W	15 43 W

Courses	Dift.	N.	S.	E.	W.
W b S ½ W	93		9.1		92.6
			Diff Lat.		Dep.

Corrected by Case the 4th, the Course by D. R. being more than 6 Points.

By D.R. fince laft Obfer.
{
Courfe —— W. by S. ½ W.
Diftance —— 93 Miles
Difference of Lat. — 9 S.
Departure —— 93 W.
Latitude by D.R. — 41 02 N.
Latitude Obfer. — 41 11 N.
}

Corrected.
{
Courfe —— Weft
Diftance —— 93 Miles
Diff. of Lat. —— 00
Departure —— 93 W.
Latitude by D.R. 41 02 N.
Lat. by Obfervation 41 11 N.
Meridian Diftance — 8 18 W.
Longitude made —— 11 56 W.
Longitude in —— 15 43 W.
}

Note, When the Courfe is due Eaft or due Weft, as in this Cafe, then the Difference of Longitude cannot be found by the Courfe, and Meridional Difference of Latitude as before, but muft be found as follows; look in the Tables of Difference of Latitude and Departure, for the neareft Degree to your Latitude, which here is 41, and in fome of the Difference of Latitude Columns belonging to that Degree find your Departure, which in this Cafe is 93, the Diftance anfwering to that which is 123, gives your Difference of Longitude.

H

H	K	H K	F	Courses	Winds	Lee-way	Transactions, *Thursday May the* 15*th*, 1762.
2	4	1		S by W	N.		
4	3	1					Little Wind and Hazy
6	3						all these 24 Hours.
8	3						
10	3			S S W	N W		
12	3						
2	3						
4	3						
6	3			S b W ½ W	W N W		
8	3						
10	3						Variation ½ Point W.erly.
12	3						

Course	Dist.	S	W	Lat. by D.R.	Lat. byOb.	Mer. Dift.	Lon. made	Lon. in
S 11 00 W	76	74	14	39 57 N.		8 32 W	12 15 W	16 02 W

Courses	Dist.	N.	S.	E.	W.	
S ½ W	28		27.9		2.7	
S b W ½ W	24		23.0		7.0	By
S by W	24		23.5		4.7	D.R.
			74.4		14.4	

By D.R.
{
Course ——————— S. 11 00 W.
Distance ———————76 Miles
Diff. of Lat.———————74 S.
Departure ———————14 W.
Latitude by D.R.   39 57 N
Latitude Observation
Meridian Distance 8 32 W.
Longitude made——12 15 W.
Longitude in———16 02 W.
}

Note, Having in the foregoing Day's Work given an Example to every Case of correcting, (for a single Day) I shall now set down two or three Days Work by D.R. and then shew how to correct them all together by an Observation, that is, how to correct for a longer Time than one Day.

H

H	K	H	K	F	Courses	Winds	Lee-way	Transactions, *Friday*, *May the* 16th, 1762.
2	3	1			S S W	W by N		
4	3	1						Little Winds and Cloudy.
6	4							
8	4				S by W	W		
10	4							
12	3	1						
2	3	1						
4	3	1						
6	3				S	W S W		
8	3							
10	3				S b W½ W	W		Variation ¼ Point W.erly.
12	3	1						

Course	Dist.	S.	W	Lat. by D.R.	Lat. by Ob.	Mer. Dist.	Lon. made	Lon. in
S 12 00 W	83	82	17	38 35 N.		8 49 W	12 38 W	16 25 W

Courses	Dist.	N.	S.	E.	W.
S b W ¾ W	30		28.2		10.1
S ¾ W	29		28.7		4.3
S ¼ E	12		12.0	0.6	
S b W ¼ W	13		12.6		3.2
			81.5	0.6	17.6
					0.6
			Dep.		17.0

By D.R.

Course ——————— S. 12 00 W.
Distance ————— 83 Miles
Diff. of Lat. ——— 82 S.
Departure ——— 17 W.
Latitude by D.R. 38 35 N.
Lat. by Observation
Meridian Distance — 8 49 W.
Longitude made ——— 12 38 W.
Longitude in ——— 16 25 W

H	K	H K	F	Courses	Winds	Lee-way	Transactions, *Saturday May the* 17*th*, 1762.
2	3	1		S bW¼W	W by N		
4	3	1					Little Wind and fair
6	3	1					Weather.
8	3						
10	3	1					
12	3						
2	3			S by W	W.		
4	2						
6	3						
8	3						Variation ¼ Point W.erly.
10	3						
12	3						

Course	Dist	S	W	Lat. by D.R.	Lat. byOb.	Mer. Dist.	Lon. made	Lon. in
S14 00 W	74	72	17	37 23 N.		9 06 W	13 1 W	16 48 w

Courses	Dist.	N.	S.	E.	W.
S by W½W	46		44.0		13.3
S ¾ W	28		27.7		4.1
			71.7		17.4

By D.R.
Course ———— S. 14 00 W.
Distance ———— 74 Miles
Diff. of Lat.——— 72 S.
Departure ———— 17 W.
Latitude by D.R. 37 23 N.
Latitude Observation
Meridian Distance 9 06 W.
Longitude made —— 13 01 W.
Longitude in ——— 16 48 W.

H

H	K	H	K	F	Courses	Winds	Lee-way	Transactions, *Sunday,* *May the* 18th, 1762.
2	4				S by W	W byN		
4	4							Moderate Gales and Fair.
6	4							
8	4							
10	4							
12	4							
2	4				S bW¼W			
4	4							
6	4							
8	4							
10	4							Variation ¼ Point W.erly.
12	4							

Courfe	Dift.	S.	W.	Lat. by D.R	Lat. byOb.	Mer. Dift.	Lon. made	Lon. in
S 9 00 W	108	107	17	35 48 N.	35 36 N.	9 23 W	13 19 W	17 06 w

Courfes	Dift.	N.	S.	E.	W.
S ¾ W	48		47.5		7.0
S by W	48		47.1		9.4
			94.6		16.4

By D.R. fince yefter-day Noon. {
Courfe ——— S. 10 00 W.
Diftance ——— 96 Miles
Diff. of Lat. 95 S.
Departure — 16 W.
Latitude D.R. 35 48 N.
Latitude Obfer. 35 36 N.
}

Now being to correct from the laft Obfervation, which was on *Wednefday, May* 14th, I take the Northing, Southing, Eafting and Wefting for every Day fince, and bring them into a Traverfe Table as follows,

By D.R. fince the laft Obfer-vation.		N.	S.	E.	W.
	On *Thurfday, May* 15		74		14
	On *Friday* 16		82		17
	On *Saturday the* 17		72		17
	On this Day as above		95		16
Whole Diff. of Lat. by D.R. S. 323 Dep. 64 W.					

Gives Courfe by D.R. fince laft Obferv. S. 11.00 W.

My

My Courfe found by D.R. fince the laft Obfervation, being S. 11 co W. which is lefs than 33 Degrees, I am to correct by Cafe the 2d, and to find every thing except the Diftance, as follows.

First, *For the true Difference of Latitude.*

Take the Latitude laft Obfervation ————————	41 11	N.
And the Latitude by Obfervation To-day———————	35 36	N.
Gives the Difference of Latitude ————————————	5 35	
Which multiplied by 60, makes ———————————	335	Miles.

Second, *For the true Courfe.*

The Courfe by D. R. fince the laft Obfervation, being S. 11 00W. I fet it down for the true Courfe, as *per* Rule in Cafe 2d.

Third, *For the Departure.*

With the true Courfe 11 Degrees, and the true Difference of Latitude (divided by 2, becaufe too big to be found in the Tables) which makes it 167.5 (by *Plain Sailing*, Cafe the 2d) I find the Departure 32.6 which multiplied by the fame Number the Difference of Latitude was divided by, *viz.* 2, gives 65.2 Tenths for the true Departure.

Fourth, *For the Meridian Diftance.*

Take the Meridian Diftance laft Obfervation ————	8 18	W.
And the true Departure —————————————————	1 05	
Gives the Meridian Diftance To-day ———————	9 23	W.

Fifth, *For the Difference of Longitude.*

Take the Meridional Parts of laft Obfervation ————	2716
And Meridional Parts of To-days Obfervation ————	2288
Gives Meridional Difference of Latitude——————	428
With the Half of which ————————————————	214

(becaufe the whole is too big to be found in the Tables) and the True Courfe 11 Degrees, I find the Difference of Longitude 41.6, which doubled becaufe the other was halv'd gives for the whole Difference of Longitude 83 Miles.

X   Sixth

Sixth, *For the Longitude made,*

Take the Longitude made last Observation — 11 56 W.
And the whole Difference of Longitude — 1 23

Gives the Longitude made — 13 19 W.

Seventh, *For the Longitude in,*

Take the Longitude in last Observation — 15 43 W.
And the whole Difference of Longitude — 1 23

Gives the Longitude in — 17 06 W.

Corrected:
		these to be found again as follows	
Course — S. 11 00 W.		S. 9 00 W.
Distance —		108 Miles
Difference of Latitude — 335 S.		107 S.
Departure — 65 W.		17 W.
Latitude by D. R. — 35 48 N.		
Latitude by Observation 35 36 N.		
Meridian Distance — 9 23 W.		
Longitude made — 13 19 W.		
Longitude in — 17 06 W.		

The Course, Difference of Latitude and Departure as above, being what has been made since the last Observation (which was 4 Days ago) and as it is usual to set them down only as they are made from Noon to Noon, therefore they are to be rubb'd out, and found again as follows;

First, Take the Latitude by D. R. Yesterday — 37 23 N.
And the Latitude by Observation To-day — 35 36 N.

Gives the Difference of Latitude — 1 47

Second, Take the Meridian Distance Yesterday — 9 06 W.
And the Meridian Distance To-day — 9 23 W.

Gives the Departure — 0 17

Then with the Difference of Latitude 107, and the Departure 17 Miles, (by *Plain-Sailing*, Case 6.) I find the Course to be 9 Degrees, Distance 108 Miles as above.

H

H	K	H	K	F	Courses	Winds	Lee-way	Tranſactions, *Monday May the 9th*, 1762.
2	5				S by W	N.		By Reckoning I make
4	6							my Courſe from the *Start*
6	6	I						to the Iſland of *Madera*,
8	7							S. 32 00 W. Diſtance 420
10	7	I						Leagues ; Meridian Diſ-
12	8							tance and Difference of
2	8							Longitude as underneath.
4	8							
6	8	I						At Noon ſaw the Iſland
8	8	I						of *Madera*, bearing S.W.
10	9							by W. Diſtance 14 Leag.
12	9							Variation 00.

Courſes	Diſt.	S.	W	Lat. by D.R.	Lat. by Ob.	Mer. Diſt.	Lon. made	Lon. in
S 19 00 W	213	202	70	32 14 N.		10 33 W	14 43 W	18 30 W

Courſes	Diſt.	N.	S.	E.	W.
S by W	182		178.5		35.5
SW by W	42		23.3		34.9
			201.8		70.4

Courſe ——— S. 19 00 W.
Diſtance ——— 213 Miles
Diff. of Latitude 202 S.
Departure ——— 70 W.
Latitude by D.R. 32 14 N.
Meridian Diſtance 10 33 W.
Longitude made 14 43 W.
Longitude in — 18 30 W.

The Bearing of the Land being SW. by W. diſtant 14 Leagues, or 42 Miles, I ſet them in the Traverſe Table as a Courſe, &c.

It being Cuſtomary upon making the Land, to find what Courſe and Diſtance the Ship has made by Reckoning from the Place ſail'd from, to the Place arrived at, it is to be done as follows.

C A S·E the Firſt, *When you keep the Account of Longitude in*,

With the Latitnde and Longitude of the Place you ſail'd from; and the Latitude and Longitude you are in by your Reckoning, on the Day you make the Land, find the proper Difference of Latitude, the Meridional Difference of Latitude, and the Difference of Longitude in Miles, and with them find the Courſe and Diſtance (as it is ſhewn at large in Mercator's Sailing) Caſe the Firſt, Page 55.

X 2

CASE

CASE the Second, *When you keep the Account of Longitude made.*

Then the proper Difference of Latitude, and the Meridional Difference of Latitude, are to be found as before, and the Difference of Longitude is to be found by bringing the Longitude made into Miles, with which proceed as in Case the First.

The Agreement between these two Ways may be seen as follows.

On the 19th of *May*, when I made the Land, my Longitude in was ———————— 18 30 W.
Longitude of the *Start* or
Place I sail'd from   3 47 E.
The Diff. of Longit. 14 43
Which multiplied by — 60
Makes ——— ——— ——— 883 Miles

On the same Day my Longitude made was ——— 14 43 W.
Which multiplied by — 60
Makes the Diff. of Lon. 883 Miles the same as in the other Case.

To find the Bearing and Distance of any Place from the Ship, upon any given Day.

Example. Suppose I would know how *Madera* bore off me, and what Distance on the 14th of *May*, by the foregoing Journal.

First, Supposing I kept only the Account of Longitude in,

Then, with the Latitude in 41 11 N.   2716   And with Lon. in —15 43 W.
And the Latitude of *Madera* 32 44 N.   2080   And the Lon. *Madera* 17 26 W.
I find the proper Diff. of Lat. 8 27   636   I find the Diff. Lon.   1 43
Which multiplied by 60 makes 507   M. D. L.   Which makes ——— 103 Miles.
Miles

Then with that Meridional Difference of Latitude, and Difference of Longitude, I find the Course to be S. 09 00 W. and the Distance 510 Miles, (as in *Mercator*, Case 1.)

But if I had kept only the Account of Longitude made, (which is Difference of Longitude) Then,

With the Longitude sail'd from ——— ——— 3 47 W:
And the Whole Diff. of Lon. or Lon. made— 11 56 W.erly

By the Rules for Longitude (Page 107) I
should have found the Lon. in to be ——— 15 43 W.

And then I have given the Latitude and Longitude in, &c. as before.

I have in the foregoing Journal shewn how to Correct either for a single Day, or for a longer Time, and given Examples of every Case, for correcting from one Observation to another; but as it may happen that you may be some Days at Sea, from the Time of your

leaving

leaving the Land before you have an Obfervation, and that when you get that firft Obfervation you may have Occafion to Correct, (and there being much the fame Difference between working the Correction from one Obfervation to another ; and between the firft Obfervation and the Land, as there is between working the firft Day's Work and any of the following ones) I fhall here give an Example from the foregoing Journal.

To Correct from the Time of leaving the Land, to the Firft Obfervation.

Example. Suppofe that in the foregoing Journal, on the 3d of *May,* I was by Obfervation in the Latitude 45 10 N. my Latitude by D R, being 45 23 N. my Southing by D.R. 95. and Wefting 24.

Now being to correct, and having no Obfervation before To-day, I muft correct from the very Beginning of my Journal, that is, from the Time of my leaving of the Land, by bringing the Northing, Southing, Eafting and Wefting, (for every Day I have been at Sea) into a Traverfe-Table as follows.

By D.R. from the Time of leaving the Land		N.	S.	E.	W.
	On the firft Day.		93		53
	On the Second Day.		96		61
	On the Day I correct.		95		24
Whole Diff. of Lat. by D.R. S. 284 Dep. 138 W.					

Gives the Courfe by D.R. from the Time of leaving the Land S. 26.00 W.

The Courfe found by D.R. from the Time of leaving the Land, being lefs than 33 Degrees, I am to correct by Cafe the Second, and to find every thing except the Diftance, as follows.

Firft, *For the true Difference of Latitude.*

Take the Latitude of the Place fail'd from   50 07 N.
And the Latitude in by Obfervation —— 45 10 N.

Gives the true Difference of Latitude —— 4 57 or 297 Miles.

Second, *For the true Courfe.*

The Courfe by D.R. fince the Time of leaving the Land being S. 26 00 W. I fet down for the true Courfe, as *per* the Rules for correcting, Cafe 2d.

Third

Third, *For the true Departure*,

With the true Courſe 26 Degrees, and half the true Difference of Latitude 148.5, (becauſe the whole is too big to be found in the Tables) by *Plain Sailing*, Caſe the 2d. I find the Departure 72.3, which being doubled (becauſe the Difference of Latitude was halv'd) gives 144.6 for the true Departure.

Fourth, *For the Meridian Diſtance*,

Whenever you correct from the Time of your leaving the Land, (as you do here) the Meridian Diſtance will always be the ſame as the true Departure found by correcting, which in this Caſe is 145 Miles, or 2.25 W.

Fifth, *For the Difference of Longitude*,

Take the Meridional Parts of the Latitude ſail'd from 3485
And of the Latitude in by Obſervation ———— ——— 3044
Gives the Meridional Difference of Latitude ———— ——— 441
With the half of which ———— ——— ———— —— 220,5
(becauſe the whole is too big to be found in the Tables) and the true Courſe 26 Degrees, (as directed in the firſt Day's Work, p. 134) I find the Difference of Longitude 107.4, which doubled (becauſe the other was halv'd gives the true Difference of Longitude 214,8.

Sixth, *For the Longitude made*,

Whenever you Correct from the Time of your leaving the Land, (as you do in this Caſe) then the Longitude made will always be the ſame as the whole Difference of Longitude found by the Correction, which in this Caſe is 215 Miles, or 3.35 W.

Seventh, *For the Longitude in*,

Take the Longitude of the Place you ſail'd from ——— ——— 3 47 W.
And the whole Difference of Longitude ——— ——— ——— 3 35
Gives the Longitude in ——— ——— ——— ——— 7 22 W.

	Course	S. 26 00W.		S16 00W.
	Diſtance		theſe to be found again	113 Miles
	Difference of Latitude	297 S.		108 S.
	Departure	145 W.		31 W.
Corrected	Latitude by D. R.	45 23 N.		
	Latitude by Obſervation	45 10 N.		
	Meridian Diſtance	2 25 W.		
	Longitude made	3 35 W.		
	Longitude in	7 22 W.		

The Courſe, Difference of Latitude and Departure as above, being what has been made in the whole, from the Time of leaving the Land (which is three
Days)

Days) and it is ufual to fet them down only as they are made from Noon to Noon, therefore they are to be rubb'd out, and found again as follows.

Firft, Take the Latitude by D. R. Yefterday —— —— 46 58 N.
. And the Latitude by Obfervation To-day —— —— —— 45 10 N.
Gives the Difference of Latitude —— —— —— —— 1 48

Second, Take the Meridian Diftance Yefterday —— —— 1 54 W.
And the Meridian Diftance To-day —— —— —— 2 25 W.
Gives the Departure —— —— —— —— —— —— 0 31

Then with the Difference of Latitude 108, and the Departure 31 Miles, (by *Plain Sailing*, Cafe 6) I find the Courfe to be S. 16 00 W. Diftance 113 Miles, as above.

Having in the preceeding Journal fhewn how to find what Latitude and Longitude the Ship is in, on any Day, I fhall in the next Place fhew how,

By that Latitude and Longitude in, to prick off the Place of the Ship on the Mercator's-Chart.

Rule. Lay a Ruler a-crofs the Chart, in the Latitude your Ship is in, then look upon the Equinoctial, or Line marked with the Degrees of Longitude, for the Longitude your Ship is in by your Reckoning, and fetting one Foot of your Compaffes in that Longitude, take the neareft Diftance to fome North and South Line, and from where that Line croffes the Edge of the Ruler that lays in the given Latitude, lay off that fame Diftance (by the Edge of the Ruler) to the Right-hand, if the Longitude you are in was to the Right-hand of the North and South Line: Or to the Left-hand if it was to the Left, where this falls will be the Place of the Ship. But this will only do when the Longitude mark'd on the Chart and your Reckoning of Longitude in, are both counted from the fame Meridian, therefore for a general Rule take the following, *viz.*

By the Latitude in, and Longitude made, to prick off the Ship's Place, &c.

Rule. Set one Foot of your Compaffes in the Place you take your Departure from, and take the neareft Diftance to fome North and South Line, and from where that Line falls upon the Equinoctial, or Line mark'd with the Degrees of Longitude, fet off that Diftance, the fame way as the Place lays from it, (that is, to the Right-hand, if the Place lay to the Right-hand of the North and South Line, or to the Left-hand if it lay to the Left) and make a Mark with a Black Lead Pencil; this Mark will ferve to prick off by, till you come to take a New Departure, and then you rub it out, and make a new one, as before.

Then lay a Ruler a-crofs the Chart in the Latitude you are in, and taking fo many Degrees in your Compaffes (from the Line of Longitude) as your Longitude made comes to, fet them off from your Black Lead Mark, to the Eaftward, if the Longitude made be Eaft, or to the Weftward if it be Weft;

where

where this falls will be the Longitude the Ship is in by the Chart, from which take the neareſt Diſtance to ſome North and South Line, and from where that Line, &c. as in the firſt Caſe.

The Ship's Place on the Chart being found as before taught ; it remains in the next Place to ſhew how to find the Bearing and Diſtance of any Place from the Ship ; and Firſt,

To find how any Place bears from the Ship.

Rule. Lay a Ruler from the Place of the Ship, to the Place you would know the Bearing of, then ſet one Foot of your Compaſs in the Center of ſome Compaſs near the Ruler, and take the neareſt Diſtance to the Edge of the Ruler ; then run one Foot of your Compaſſes along by the Edge of the Ruler, and obſerving what Point of the Compaſs the other comes neareſt to, which will be the Bearing required.

To find the Diſtance of any Place from the Ship.

Caſe the 1ſt, If the Place be in the ſame Longitude that the Ship is in, (that is, if it bears due North or due South) then the Difference of Latitude between them, (found as by the Rules for Latitude, Page 105) and turn'd into Miles or Leagues will be the Diſtance.

Caſe the 2d, If the Place be in the ſame Latitude that the Ship is in, (that is, if it bears due Eaſt or due Weſt) then take half the Diſtance between the Ship and the Place, in your Compaſſes, and ſetting one Foot (on the Line mark'd with the Degrees of Latitude) in the Latitude the Ship is in, ſee what Latitude the other Foot will reach to, both above and below it ; the Difference between theſe two Latitudes, (found as *per* Rules for Latitude) will be the Diſtance required.

Caſe the 3d, If the Place be neither in the ſame Latitude nor Longitude with the Ship, then take the Difference of Latitude between them in Degrees, from the Equinoctial-line, and laying a Ruler from the Ship to the Place, apply one Foot of the Compaſſes ſo to the Edge of the Ruler, that the other Foot turn'd about may juſt touch ſome Eaſt and Weſt Line, that is croſs'd by the Ruler, then take the Diſtance along the Edge of the Ruler, from the Place where the Compaſſes reſted, to the Place where the Ruler croſſes the ſaid Eaſt and Weſt Line ; that Diſtance meaſured on the Equinoctial, or Degrees of Longitude, will give the Diſtance in Degrees, which you may turn into Miles or Leagues, and in the ſame manner as you find the Bearing and Diſtance of any Place from the Ship ; you may alſo find the Bearing and Diſtance of one Place from another.

F I N I S.